

This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

J. A. BERLY'S

BRITISH, AMERICAN AND CONTINENTAL

ELECTRICAL DIRECTORY

AND ADVERTISER.

1883.

"OTTO"



GAS ENGINE.

Digitized by Google

THE FAURE ELECTRIC ACCUMULATOR

COMPANY, LIMITED,

71, QUEEN STREET, QUEEN VICTORIA STREET, E.C.

THE Company is now prepared to treat with individuals or corporations for the employment of its system.

For Lighting, and the transmission of power, the FAURE ACCUMULATOR is a necessity. By its use a large proportion of Electric work, hitherto impracticable, becomes realisable on an economic basis.

The Company can undertake, by the use of its Patent Accumulator, many industrial applications of Electricity hitherto impossible.

No installation of Electric Lighting should be effected without these Accumulators: they are to an installation of Electric Lighting what a gasometer is to gas.

The Electric energy stored in the Cells can be utilised for the Electric Lighting of Streets, Public Buildings, Houses, Ships, &c.; for Motive Power (such as the working of Tram Cars and Omnibuses), the propulsion of Electric Cars (constructed as a substitute for Cabs), Tricycles, &c., and for every purpose to which Electricity is applicable.

For information and details, apply at Offices of the Company, as above.

The following are examples of the installations effected by means of the FAURE ACCUMULATOR:—

The Great Dining Room of the Grand Hotel, Trafalgar Square.

The new fast Passenger Steamers of "The London, Brighton, and South Coast Railway," from Newhaven to Dieppe.

The Pullman Express from London to Brighton (in operation since November 1881), &c., &c.

CAUTION.—The Solicitors of the Company are instructed to proceed against all persons infringing the Company's Patent Rights for "Electric Accumulators."

Digitized by Google

PATERSON & COOPER

(Late EDWARD PATERSON),

Electric Light & Power & Telephone

ENGINEERS,

St. Paul's Works, 76, LITTLE BRITAIN, LONDON, E.C.,

AND

European Telegraph Works, Pownall Road, Dalston.

PRIZE MEDALS, INTERNATIONAL ELECTRICAL EXHIBITIONS, PARIS, 1881, AND LONDON, 1882.

MANUFACTURERS OF

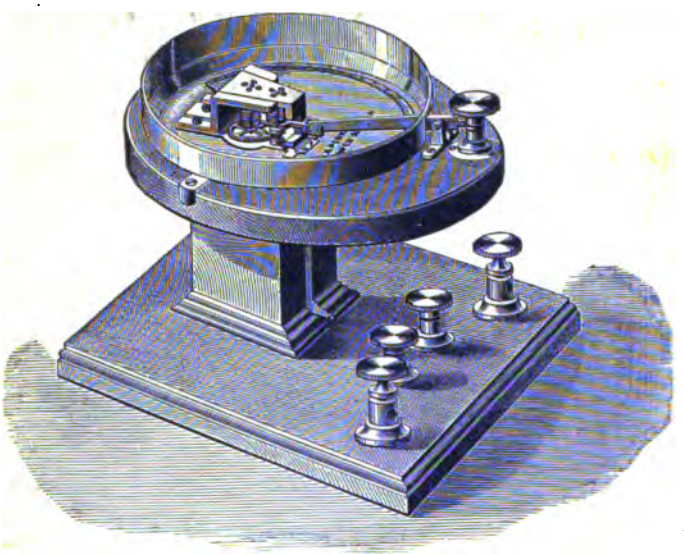
Dynamo Machines, Arc Lamps, Switches,

AND ALL FITTINGS FOR ELECTRIC LIGHT INSTALLATIONS.

SOLE MAKERS OF AYRTON AND PERRY'S ELECTRIC CURRENT METERS.

AYRTON & PERRY'S

Ammeter.
Ohmmeter.
Power Meter.
Voltmeter.
Eidsforth's "R. E." Switches.
Telephones.
Transmitters.
Switchboards.
Batteries.
Insulators.
Magneto Call Bells.
Electric Signals.



MUDFORD'S IMPROVED THOMSON'S REFLECTING GALVANOMETER.

SPECIAL ELECTRICAL TEST INSTRUMENTS FOR ELECTRIC LIGHT COMPANIES.

THE AYRTON-PERRY DYNAMO MACHINE.

THE ELPHINSTONE VINCENT DYNAMO MACHINE.

Digitized by Google

ELECTRIC LIGHT.

THE ANGLO-AMERICAN

BRUSH ELECTRIC LIGHT CORPORATION

(LIMITED).

CAPITAL £800,000; FIRST ISSUE, £400,000.

Offices: BELVEDERE ROAD, LAMBETH, S.E.

Works:—BELVEDERE ROAD, AND VINE STREET, LAMBETH, S.E.,

MANSFIELD STREET, BOROUGH ROAD, S.E., and

PORTPOOL LANE, GRAY'S INN ROAD, W.C.

By the Brush System a large number of lights can be produced from one dynamo machine. The connecting wires may be extended over circuits of many miles, and it is claimed that economy, constancy and simplicity are secured at a less cost than by any other system.

The Corporation is also prepared to supply, for domestic lighting, incandescent lamps of 10-candle power and upwards, manufactured with the newest improvements, under the Lane-Fox system. These lights are suitable for private houses, business offices, clubs, hotels, &c.

All inquiries to be addressed to the SECRETARY, at the offices, BELVEDERE ROAD, LAMBETH, S.E.

Dr 196. d. 3
1883

Digitized by Google

SECOND EDITION, REVISED AND ENLARGED.

J. A. BERLY'S

British, American and Continental

ELECTRICAL DIRECTORY

AND

ADVERTISER.

THE ELECTRICIAN'S "VADE MECUM."

CONTAINING

A COMPLETE RECORD OF ALL THE INDUSTRIES DIRECTLY

OR INDIRECTLY CONNECTED WITH

ELECTRICITY AND MAGNETISM,

AND THE NAMES AND ADDRESSES OF MANUFACTURERS IN ENGLAND, ETC.

PRICE 7/6

BODLEIAN LIBRARY
1 MAR 83
OXFORD.

LONDON:

PUBLISHED BY WM. DAWSON & SONS, 121, CANNON STREET, E.C.

ELECTRICAL REVIEW OFFICE: 22, PATERNOSTER ROW, E.C.

J. A. BERLY, 16, NEW BRIDGE STREET, E.C.

NEW YORK:
GEO. CUMMING, 219, EAST 18TH STREET.

BERLIN:
BERTH. MENDEL, W. LÜTZOWSTR. 84.

ENTERED AT STATIONERS' HALL.

1888.

Digitized by Google

ELECTRIC LIGHT LEADS, GUTTA-PERCHA, INDIA-RUBBER, COMPOUND BRAIDED COTTON,
SILK COVERED WIRES.

SPECIAL WIRES
For INCANDESCENT LAMPS.

PHILLIPS BROS.,

ELECTRICAL WIRE MANUFACTURERS,

THE LEA TELEGRAPH WORKS, HACKNEY WICK,

LONDON.

LATE MACKINTOSH LANE, HOMERTON.

ESTABLISHED 1870.

SPECIAL WIRES
FOR DYNAMO MACHINES.

MULTIPLE, AERIAL, AND SUBTERRANEAN CABLE WIRES TO ANY SPECIFICATION.

GERMAN SILVER WIRES FOR HIGH RESISTANCES, FLEXIBLE CORDS, TELEPHONE WIRES, &c.

Digitized by Google

PREFACE.

THE increased size and importance of this second issue of "THE ELECTRICIAN'S VADE MECUM," show that we did not over estimate the results, in the Preface of our first issue—one year ago—when we assumed that, owing to the recent unprecedented development of electrical industries, the existence of a book of this description had become a necessity.

This fact has now been fully proved to us, and the favour with which the publication has been received, the success it has met with, and the great interest which has been shewn in every quarter in the present issue, are ample proofs that the book is supplying a recognised want of all professions or trades directly or indirectly connected with electricity and magnetism.

THE ELECTRICAL DIRECTORY has been thoroughly revised and considerably enlarged; it now includes American and Continental sections; the former is of such importance, that it has caused us to slightly alter the title of the publication.

We have been asked—What have certain of the trade headings to do with electricity? The Public have answered this question themselves by contracting specially to have some of the more indirect trades brought under the notice of the large Electrical Trading Companies and Electricians.

No efforts have been spared to make the book appear as correct and comprehensive as possible, still no doubt much remains to be done in order to make it perfect. To this end we will devote our best energies, and will always depend upon the kindness of our subscribers and correspondents to contribute to it by supplying us their names and addresses, as well as any information or data in their possession of a nature likely to contribute to the utility of the work.

In submitting our work to the criticism of the Public, we take the opportunity to thank our numerous friends and correspondents who have given us so much valued assistance, especially Mr. GEO. CUMMING, of New York, U. S. A., and Herr BERTHOLD MENDEL, Berlin, who have edited and revised the American and German Sections.

J. A. BERLY,

C.E., A.S.T.E., Etc.

LONDON, 31*st December*, 1882.

Digitized by Google

THE UNIVERSAL
Inventors & Patentees Financial Co.,
LIMITED,

(*Late L. A. GROTH & Co., London, formerly Stockholm and Copenhagen.*)

30, FINSBURY PAVEMENT, LONDON, E.C.

CAPITAL £60,000 Sterling.

THE COMPANY UNDERTAKES THE FOLLOWING BUSINESS:—

PATENTS for Inventions procured in England, the Colonies, and all other Countries;

TRADE MARKS and **DESIGNS** drawn and registered;

COPYRIGHTS for Works of Art, Books, Titles, Labels, &c., secured;

SPECIFICATIONS and **DRAWINGS** prepared;

TECHNICAL, SCIENTIFIC and **LEGAL** Advice given;

TRANSLATIONS into and from all Languages;

SALE and **INTRODUCTION** of Inventions;

CAPITAL secured, and **PARTNERS** introduced;

Formation of **JOINT STOCK COMPANIES** for developing and working of Inventions;

NEGOTIATIONS OF GOVERNMENT and **MUNICIPAL CONCESSIONS** for Public Works, such as **RAILWAYS, TRAMWAYS, ELECTRIC LIGHTING, &c., &c.,** also the purchase and sale of Industrial Works, Manufacturing and other Properties, in the United Kingdom of Great Britain and Ireland, the Colonies, and all Foreign Countries.

EXPENSES paid in **ADVANCE** for approved Inventions.

L. A. GROTH, K.G.V., Managing Director.

THE

JÜRGENSEN ELECTRIC SYSTEM.

(Dynamo-Machine and Arc Lamp.)

GOLD MEDAL at the Paris International Exhibition, 1881.

This System embraces the use of Electricity for both **lighting** and **motive purposes.** This System gives the most satisfactory light as regards **steadiness, whiteness,** and **price,** and can in every respect compete successfully with any other existing system, the **primary cost being lower** than that of any other in the market.

This System has, from its great advantages, been adopted by several Governments, and is in actual working in many places.

Full particulars and estimates may be obtained from the Sole Agents:

The Universal Inventors and Patentees Financial Company, Limited,

L. A. GROTH, K.G.V., MANAGING DIRECTOR, 30, FINSBURY PAVEMENT, E.C.

Digitized by Google

CONTENTS.

F.–TABLE DES MATIÈRES.
G.–INHALT.

———:o:———

Preface	iii.
Index to British Classified Trades	vii.—xiii.
Index to American Classified Trades	xv.—xvii.
Index to Canadian Classified Trades	xvii.
Index to French Classified Trades { Paris	xix.
Index to French Classified Trades { Provinces	xx.
Index to Belgian Classified Trades	xxi.
Index to Russian Classified Trades	xxi.
Index to German Classified Trades	xxii.—xxiii.
Index to Advertisers	xxv.—xxix.
Press Opinions	xxxi.—xxxiv.
Too Late Names	xxxv.—xxxix.
Remarks on the Past Year	1— 9
Tables and Formulæ	11— 17
Differences of time at important places from Mean time at Greenwich	18
Morse Codes—American and International	19— 21
London Classified Trades Directory	23— 94
Country Classified Trades Directory	97—163
British Alphabetical Directory	165—275
Society of Telegraph Engineers and of Electricians	277—301
Telegraph and Telephone Companies	303—321
Electric Light Companies	323—336
British Electrical Publications, etc.	337—342
Appendix—Rules and Regulations as regards Fire Risks for Electric Installations	343—348
Directory of British Advertisers	349—422
American Classified Trades' Directory	423—478
American Alphabetical Directory	479—534
American Telegraph and Telephone Companies	535—561
Difference of Time at Important Places from Mean Time at Washington	562—563
Publications of the United States Patent Office	564—565
Summary of Patents bearing on Electricity, Magnetism, etc.	566—567
American Directory of Advertisers	569—585
Canadian Classified Trades' Directory	587—588
Preface to French Directory	590
French Classified Trades' Directory	591—611
French Directory of Advertisers	613—622
Belgian Classified Trades' Directory	623—624
Russian Classified Trades' Directory	625—626
Preface to German Directory	629—630
German Classified Trades' Directory	631—656
German Electrical Publications	657—663
German Directory of Advertisers	664

Digitized by Google

THE

"PILSEN" "JOEL,"

AND

GENERAL ELECTRIC LIGHT COMPANY,

LIMITED.

OFFICES:—

ST. STEPHEN'S CHAMBERS, TELEGRAPH STREET, LONDON, E.C.

SOLE PROPRIETORS OF THE PATENTS FOR

THE "PILSEN" ARC LAMP,
THE "JOEL" SEMI-INCANDESCENT LAMP,
AND THE "GATEHOUSE" INCANDESCENT LAMP.



By Royal Letters Patent & as supplied to H. M. Government.

GOLD MEDALS.

PARIS, 1881. | LONDON, 1882.

This Company is the only one controlling three distinct systems, viz. :—

(1.) **The "Pilsen" Arc Lamp,** which is the *simplest* and *steadiest* of its class. Its construction is extremely simple, there being no springs or clockwork to regulate the carbons, it is noiseless, and can be managed without skilled labour. It is particularly adapted to large spaces, streets, railway stations, or other large buildings, *one Lamp giving a light equal to* 100 *Gas Jets, and at less cost.*

The "Joel" Semi-Incandescent Lamp is most economical for lighting manufactories, shops, residences, and rooms of medium size. *One Lamp will give a light equal to* 10 *or more Gas Jets.* It is cheap and absolutely steady.

The "Gatehouse" Incandescent Lamp is especially adapted for warehouses, small workshops, and domestic purposes, *giving a light equal to from* 1 *to* 3 *Gas Jets, or* 10 *to* 30 *Candles, according to requirements.* This Lamp is cheap, and it is believed will last longer than any other Incandescent Lamp.

This Company is prepared to make Contracts to erect, in the shortest possible time, complete sets of Apparatus for lighting mills, ship-building yards, railway sheds and stations, engineers' shops, mills, general manufactories, and for all inside and street illumination.

Applications for estimates to be made to the Secretary at the offices of the Company as above.

Digitized by Google

INDEX

TO

BRITISH CLASSIFIED TRADES.

	Page. London.	Country.
A.		
Accumulators of Electricity	25	99
Acid Manufacturers	25	99
Air-tight Glass Case Makers	25	99
Alkali Manufacturers	—	99
Ammonia Manufacturers	—	99
Anti-Friction Metal Makers	25	99
Atimony Dealers and Refiners	25	99
Asbestos Manufacturers and Mine Owners	26	99
Asbestos Merchants	26	99
Assay Office and Laboratory Apparatus Makers	26	—
Assayers	26	100
B.		
Balance Makers	26	100
Barytes Makers	—	100
Battery Jars Manufacturers	26	100
Battery Manufacturers	26	100
Bell Hanging Engineers	26	—
Belting Manufacturers	27	—
Bismuth Merchants	—	100
Black Lead Manufacturers	—	100
Boiler Non-Conducting Composition Makers	27	100
Boiler Tube Brush Makers	—	100
Bolt and Nut Manufacturers	27	100
Brass and Copper Founders	28	102
Brass Finishers	—	101
Brass Founders and Manufacturers	—	101
Brass Manufacturers	29	—
Brass Masters and Merchants	—	104
Braziers	33	104
Brimstone Refiners	29	—
Bronze Powder Makers	—	104
Bronzists	29	104
C.		
Cable Manufacturers	29	152
Cadmium Manufacturers	—	104
Carbon Manufacturers	30	104
Charcoal Makers and Dealers	30	104
Chemical Appliance Manufacturers	30	105
Chemical Glass and Apparatus Manufacturers	30	—
Chemists—Analytical	31	105
Chemists—Manufacturing and Metallurgical	31	105
Chronometer Makers	31	107
Clock Wheel Makers	32	—
Clutch Manufacturers	—	107

Digitized by Google

	Page. London.	Country.
Compass Adjusters in Iron Vessels	—	107
Compass Cap Makers	32	—
Compass Cap Centre Makers	32	—
Compass Makers	81	107
Composition Makers—for preventing Incrustatation in Steam Boilers	32	108
Copper Companies and Merchants	32	108
Copper Smelters and Refiners	—	109
Coppersmiths and Braziers	33	104
Copperas Manufacturers	33	110
Core Serving Machinery Manufacturers	—	110
Cotton Waste Merchants	33	110
Covered Wire Machine Manufacturers	—	111
Covered Wire Manufacturers	34	111
Crucible Manufacturers	—	111

D.

Designers	—	111
Domestic Electricians	34	111
Drain Pipe (Stone-ware) Manufacturers	34	111
Draining Tool Manufacturers	—	112
Draughtsmen	35	112
Driving Band Makers—Cotton	35	112
,, ,, India Rubber	35	112
,, ,, Leather	35	112
Dynamo Machines for Electric Lighting, Manufacturers of	36	—
Dynamo, Magneto and Electric Machine Manufacturers	36	113

E.

Earthenware Manufacturers	—	113
Earthenware Telegraphic Appliances	37	—
Ebonite Manufacturers	37	—
Economic Gas Machine Manufacturers	—	115
Electric Alarms—Burglars, Fire, Safes, Ships, Trains, &c.	37	115
Electric Apparatus for Lighting Gas	37	115
Electric Bell Apparatus (Contractors for Maintaining)	37	115
Electric Bell Engineers	38	115
Electric Bell Fitters	38	115
Electric Bell Manufacturers	38	116
Electric Boats	39	—
Electric Carbon Manufacturers	39	117
Electric Clock Manufacturers	39	117
Electric Clocks and Electric Synchronization	39	—
Electric Depositor	40	—
Electric Drawers Manufacturers	—	117
Electric Lamp Manufacturers—Arc	40	117
Ditto ditto Incandescent	40	117
Electric Lamp Posts	41	—
Electric Light Apparatus Manufacturers	41	118
Electric Light Companies	42	118
Electric Light Contractors	42	118
Electric Light Fitting Manufacturers and Fitters	44	118
Electric Light Patentees and Contractors	44	—
Electric Light Systems	44	—
Electric Lighting Tackle Makers	44	—
Electric Locks	44	—
Electric Measuring Instrument Makers	45	—
Electric Railway Companies	45	—
Electric Specialities Manufacturers	45	—
Electric Switch Manufacturers	49	118
Electric Toys	46	—
Electric Tramways	46	—

Digitized by Google

	Page. London.	Country.
Electric Transmission of Power	46	118
Electrical Condensers Manufacturers	46	—
Electrical Instrument Makers	46	117
Electrical Sundries Manufacturers	47	118
Electrical Sundriesmen	47	—
Electrical Testing Instrument Makers	47	—
Electrical Water Level Apparatus Makers	—	119
Electricians	47	119
Electricians—Consulting	48	—
Electricians—Manufacturing	49	139
Electricians—Medical	49	—
Electro-Motor Manufacturers	49	120
Electro-Plate Manufacturers and Dealers	49	120
Electro-Platers' and Electrotypers' Plant and Material Manufacturers	50	124
Electro-Platers' Supply Factors	50	124
Electro-Plating and Depositing Machine Makers	50	124
Electrolier Fitters	—	119
Electrolier, Lamp, Lustre, &c., Manufacturers	50	119
Electrotypers	52	124
Emery Wheel and Machinery Makers	52	124
Enamellers (of Glass or Iron)	52	124
Engine and Boiler Fittings Manufacturers	52	—
Engine Makers—Caloric	52	—
Engine Makers—Gas	52	124
Engine Makers—Steam	53	124
Engine Oil Refiners	53	—
Engineers—Civil	—	125
Engineers—Consulting	—	125
Engineers—Electric Light	53	126
Engineers—Electrical	54	126
Engineers—Electrical Consulting	54	126
Engineers—Electrical Testing	55	126
Engineers—Hydraulic	—	126
Engineers—Lighthouse	56	127
Engineers—Mechanical	56	127
Engineers—Mining	—	127
Engineers—Telegraph and Telephone	57	128
Engineers' Tool Makers	—	128
Engravers on Wood	57	128

F.

Felt Makers	58	128
Fibre Manufacturers	59	129
Flexible Gas, Speaking, Telephone, &c., Tube Makers	58	129

G.

Galvanic Apparatus Dealers	68	129
Galvanizers	59	129
Galvanized Wire Manufacturers	59	160
Gas Fittings Makers to suit Electric Installations	—	129
Gas Generating Machine Manufacturers	59	—
Gas and Water Pipe Manufacturers	77	129
Gauge and Draw Plate Makers	—	130
Gauge Glass Manufacturers	—	130
Gauge Makers	—	130
Gelatinized Fibre Manufacturers	59	129
General Supplies of Electrical Requisites	59	—
German Silver Casters and Manufacturers	—	130
German Silver Wire Manufacturers	59	130
Glass Benders	59	—
Glass Blowers	60	—

Digitized by Google

	Page. London.	Country.
Glass Cell (Battery) Manufacturers	60	—
Glass Globe Makers	60	130
Glass House Makers	60	—
Glass Shade Makers and Dealers	61	130
Glass Shade Stand Makers	61	—
Governor Makers	61	131
Grease Manufacturers	61	131
Gutta Percha Manufacturers & Dealers	61	131

H.

High Speed Engine Makers	62	131
Hinge Makers	62	131
Holdfasts (for Gas Iron and Water Pipes) Makers	—	131

I.

India Rubber Manufacturers and Dealers	62	132
Ink (Writing) Manufacturers	63	—
Inspirator Manufacturers	63	—
Insulators (Telegraph) Manufacturers	64	132
Inventors—Electrical	64	132
Iridium Manufacturers and Dealers	64	—
Iron Founders	64	132
Iron Manufacturers	—	134
Iron and Steel Manufacturers	—	134
Iron and Steel Merchants	—	135
Iron Tank Manufacturers	64	134
Ivory Turners	—	135

J.

Jewel Hole Makers	65	—

L.

Lamp (Electric) Post Manufacturers	65	135
Lathe Makers for Electricians	65	135
Lead Manufacturers and Mine Owners	65	135
Lead Merchants	69	136
Lead Pipe Manufacturers	—	136
Lead Smelters	—	137
Lighthouse Dioptric Apparatus Makers	65	137
Lightning Conductor Manufacturers	65	137
Lubricant Manufacturers	66	—
Lubricator Makers (for Electric Machines and Engines)	66	138

M.

Machine Manufacturers and Machinists	66	138
Machine Strap Fastener Makers	66	138
Machine Strap Makers	66	—
Machine Tool Makers	66	138
Magnesium Manufacturers	67	—
Magnet Manufacturers	67	139
Magnetic Curative Appliance Manufacturers	67	139
Magnetic Steel Manufacturers	—	139
Mathematical Instrument Makers	67	139
Medical Battery Manufacturers, Galvanists and Electricians	68	139
Melters	68	—
Merchants—Chemical	69	140
Merchants—Lead	69	136

X.

Digitized by Google

	Page. London.	Country.
Merchants—Manganese	70	140
Merchants—Mercury	70	—
Merchants—Mica	70	—
Merchants—Tin	70	140
Merchants—Zinc	70	163
Metal Merchants	71	140
Methylated Spirit Makers and Distillers	—	141
Meteorological Instrument Makers	71	—
Microphone Makers	72	—
Mill Furnishers	72	—
Model Makers	72	141
Muriatic Acid Manufacturers	72	141

N.

Nickel Manufacturers and Dealers	72	—
Nickel Merchants	—	141
Nickel Refiners	—	141
Nitric and Nitrous Acid Manufacturers	72	141

O.

Oil Merchants	72	141
Oil Refiners	74	142
Optical Glass Makers	—	142
Opticians	74	142
Oxide Manufacturers	—	143

P.

Parchment Makers and Dealers	76	—
Patent Agency	76	—
Patent Agents	76	—
Patent and Design Registration Agents	76	143
Patent Office	77	—
Permanent Way for Electric Wires	—	143
Phosphor Bronze and Silico Bronze Manufacturers	77	—
Photometer Makers	77	—
Pipe (Iron and Brass) Makers	77	155
Platers	77	120
Platina Smiths	78	—
Platinum Refiners	78	143
Platinum Retort and Boiler Manufacturers	78	—
Porous Cell Manufacturers	79	143
Printers and Publishers of Berly's Electrical Directory	79	—
Publications—Electrical	79	—
Pulley Makers	79	143

R.

Railway Signal Manufacturers	79	144
Railway Switch and Crossing Manufacturers	—	144
Refiners—Metal	—	144
Reflector and Shade Manufacturers	79	—
Rivet Makers	79	144
Rolling Mills and Rolled Metal Merchants	—	145
Rope Manufacturers	—	145

S.

Saltpetre Works	—	145
Scientific Apparatus Makers	80	—
Screw Makers	80	145

Digitized by Google

	Page. London.	Country.
Screw, Stock and Die Tap Makers	—	146
Screw Terminal and Small Detached Accessories Manufacturers	80	146
Sealing Wax Manufacturers	—	146
Shackle Manufacturers	80	146
Shafting Manufacturers	80	146
Shellac Merchants	—	146
Ships' Compass Makers	81	107
Ships' Telegraph (Makers of)	—	147
Silk Spinners	—	147
Silver Solder Manufacturers	—	147
Smelters	—	147
Societies—Learned	81	—
Soda Manufacturers	—	147
Solder Merchants	—	147
Speed Indicator Makers	81	—
Spelter Manufacturers	81	147
Spring Makers	81	147
Steam Boiler Fittings Manufacturers	—	147
Steam Engine Boiler Makers	81	148
Steam Engine Indicator Makers	—	149
Steam Packing Manufacturers	82	149
Steel Castings Manufacturers	—	149
Steel and File Manufacturers	83	149
Steel Manfacturers	82	150
Steel Tilters, Rollers, and Forgers	—	151
Stoneware Manufacturers	—	151
Stranding Telegraph Machine Manufacturers	—	151
Sulphate of Alumina Manufacturers	—	151
Sulphate of Ammonia Manufacturers	83	—
Sulphate of Copper Manufacturers	83	151
Sulphur Manufacturers	—	151
Sulphur Refiners	83	—
Sulphuric Acid Manufacturers	83	151
Sulphurous Acid Manufacturers	83	—
Surgeon Electricians	83	—

T.

Tallow Merchants	83	—
Tank Manufacturers	83	—
Taping Machine Manufacturers	—	151
Teachers of Electrical Engineering	83	151
Teachers of Mathematics	—	151
Teachers of Telegraphy and Electrical Science	83	152
Telegraph Agents	84	—
Telegraph Cable Making Machine Manufacturers	—	152
Telegraph Cable Manufacturers	29	152
Telegraph Case Manufacturers	84	—
Telegraph Code Ciphers	84	—
Telegraph Companies	84	152
Telegraph Contractors	85	152
Telegraph Engineers of Railway Companies	85	152
Telegraph Instrument Case Manufacturers	86	—
Telegraph Instrument Manufacturers	85	152
Telegraph Iron Buoy Makers	85	—
Telegraph Paper Makers	86	—
Telegraph Pole (Iron) Manufacturers	86	153
Telegraph Submarine Cable Manufacturers	86	—
Telegraph Submarine Engineers	86	153
Telegraph and Telephone Wire Coverers	86	153
Telegraph and Telephone Wire Manufacturers	87	153
Telegraph Works	87	154
Telegraphic Codifiers	88	—

Digitized by Google

	Page. London.	Country.
Telephone Apparatus Makers	88	154
Telephone Case Manufacturers	88	—
Telephone Companies	88	154
Telephone Contractors	—	154
Telephone Instrument Makers	88	—
Telephone Wire Manufacturers	88	—
Testing Machines for Wire, etc.	88	—
Tin and Lead Foil Manufacturers	88	—
Tin Smelters	89	—
Tool Handle Makers	—	154
Tool Manufacturers	89	154
Torpedo Manufacturers	89	—
Tracers	89	—
Tracing Cloth and Tracing Paper Manufacturers	—	155
Trade Protection Societies	—	155
Trough Stone Ware for Batteries	89	—
Tube Expanders	89	—
Tube Makers—Brass and Copper	89	155
Tube Makers—Iron	90	155
Tube Makers—Lead	90	—
Turbine and Water Wheel Makers	90	156

V.

Valve Manufacturers	91	157
Vices—parallel—Wrought and Cast	—	157
Vulcanite Manufacturers	91	—
Vulcanized Fibre Manufacturers	91	157

W.

Watch Makers (Non-magnetizable)	91	—
Wheel Cutters	—	157
White Lead Manufacturers	—	157
Wire Cord Manufacturers	—	157
Wire Coverers	91	157
Wire Covering Machine Makers	91	157
Wire Draw Plate Makers	91	159
Wire Drawers and Manufacturers	92	157
Wire Gauge Manufacturers	92	—
Wire Manufacturers—Brass and Copper	92	160
Wire Manufacturers—Galvanized Iron	93	160
Wire Manufacturers—Insulated	93	—
Wire Manufacturers—Iron	93	160
Wire Manufacturers—Phosphor Bronze	93	—
Wire Manufacturers—Steel	94	161
Wire Rope Importers	—	161
Wire Rope Manufacturers	94	161
Wire Staples Manufacturers	94	161
Wire Workers and Weavers	94	162
Wood-working Machinists	94	—

Z.

Zinc Manufacturers	—	162
Zinc Merchants	70	163

Digitized by Google

ENGINEERING:

An Illustrated Weekly Journal,

EDITED BY WILLIAM H. MAW AND JAMES DREDGE.

PRICE SIXPENCE WEEKLY.

"**Engineering,**" besides a great variety of Illustrated Articles, and Notes of General Professional Interest, devotes a considerable space in each issue to the illustration and description of all matters connected with the

PRACTICAL APPLICATIONS OF PHYSICAL SCIENCE.

Each Number also Contains

AN ILLUSTRATED PATENT RECORD.

Price of Subscription in the United Kingdom (by post) £1 9s. 2d., payable in advance.

The large and influential circulation of "ENGINEERING" makes it the best possible medium for Advertisements for Engineers, Electricians and Manufacturers.

Prices for Advertisements in "ENGINEERING."

For First Four Lines..... 3s. 0d. | Each Line afterwards ..... 0s. 8d.

For Displayed Advertisements Special Terms are given.

Advertisements intended for insertion in the current number should be sent not later than Five o'clock on the Thursday Afternoon of each week to CHARLES GILBERT, Publisher.

Offices of "ENGINEERING"—35 & 36 BEDFORD ST., STRAND, W.C.

["ENGINEERING SERIES."

Just published, Demy 4to, price 30s. cloth, with 900 pp. and 833 Figures.

ELECTRIC ILLUMINATION:

GENERAL PRINCIPLES, CURRENT GENERATORS, CONDUCTORS, CARBONS AND LAMPS;

By CONRAD W. COOKE. JAMES DREDGE, M. F. O'REILLY, SILVANUS P. THOMPSON, and H. VIVAREZ.

EDITED BY JAMES DREDGE.

Chiefly compiled from "Engineering."

With Lists and Abstracts of the Specifications deposited at the Patent Office having reference to Electric Lighting. Prepared by W. LLOYD WISE.

SECTION I.—1. Electrical Units. 2. The Measurement of Electrical Intensities. 3. The Voltaic Arc. 4. The Mechanical Production of Electrical Currents. 5. The Theory of Dynamo-Electric Generators.

SECTION II.—6. Magneto and Dynamo-Electric Generators.

SECTION III.—7. Conductors. 8. Carbons.

SECTION IV.—9. Arc Lamps. 10. The Jablochkoff System. 11. Incandescence-Arc Lamps. 12. Incandescence Lamps.

APPENDIX.—1. Abridgments of Patent Specifications. These comprise all Specifications deposited at the Patent Office, between 1837 and 1872, referring to the subject of Electric Lighting, including Generators, Lamps, Carbons, Conductors, Insulators, &c. 2. A classified list of English and American Patents referring to the Electric Light from 1837 to 1882.

A SECOND VOLUME will follow to comprise Installations, Motive Power, Cost of Production and Maintenance, Electrical Photometry, Secondary Batteries, Accessories to Electric Lighting, &c., &c. Together with the completion of the Patent Abridgments from 1872 to 1882. Each volume will be sold separately.

LONDON: OFFICES OF "ENGINEERING," 35 & 36, BEDFORD STREET, STRAND, W.C.

NEW YORK: JOHN WILEY & SONS.

Digitized by Google

INDEX

TO

AMERICAN CLASSIFIED TRADES.

Page.

A.

Acid Manufacturers 425
Agencies for the Sale of Patents 425
Asbestos and Asbestos Materials Manufacturers 425
Assayers 425
Automatic Electric Signalling Apparatus Makers 425

B.

Babbit Metal Makers 425
Balance Makers 425
Battery Manufacturers 425
Belting and Packing Manufacturers 426
Belts—Medical Galvanic 426
Black Lead Manufacturers 426
Boiler Cleaners 426
Boiler (Anti-Fouling) Compound Makers 426
Boiler (Anti-Fouling) Makers 426
Boiler and Pipe Coverings Manufacturers 426
Boiler Rivets 426
Boiler Tube Makers 426
Bolt, Nut and Washer Makers 426-7
Bone Dealers 427
Bone Black Manufacturers 427
Boxes—Wood Mailing and Nested 427
Braids on Patent Cards 427
Brass Butt Hinge Makers 427
Brass Finishers 427
Brass Founders 428
Brass Founders Furnaces 428
Brass Goods Manufacturers 428
Brass and Copper Manufacturers 428
Brass Polishing Webbing 429
Brass Wire Manufacturers 429
Brass Wire Cloth Manufacturers 429
Brass Workers Supplies 429
Brass Workers Tools 429
Brokers Metal 429
Bronze Founders 429
Burglar and Fire Alarms 429

C.

Cable Manufacturers 430
Calcium Lights 430
Carbon Manufacturers 430

Page.

Cast Iron Pipes and Fittings 430
Charcoal Makers and Dealers 430
Chemicals 430
Chemical Apparatus 431
Chemical Paper Manufacturers 431
Chemists Analytical 431
Chemists Manufacturing 431
Chronometers 432
Copper Founders 432
Copper Lightning Rod Manufacturers 432
Copper Nails and Tacks 432
Copper Rivet Manufacturers 432
Coppersmiths 432
Copper Wire Manufacturers 432
Cotton Waste Manufacturers 432
Covered Wire Manufacturers 432
Creosoted Wood 433
Crucible Manufacturers 433

D.

Designers and Draughtsmen 433
Directory (Electrical) Office 433
Dynamo and Magneto-Electric Machine Manufacturers 433

E.

Electric Alarm Manufacturers 434
Electric Annunciators and Call Bells 434
Electric Apparatus for Lighting Gas 434
Electric Appliance Makers 435
Electric Attachments for Regulating Time Clocks 435
Electric Bell Hangers 435
Electric Bell Manufacturers 435
Electric Belts, Bands, &c. 435
Electric Blasting Apparatus 435
Electric Carbon Manufacturers 435
Electric Clock Makers 435
Electric Clothing Manufacturers 435
Electric Companies 435
Electric Gas Burner Manufacturers 436
Electric Lamp Manufacturers 436
Electric Light Apparatus Manufacturers 436
Electric Light Companies 436
Electric Light Contractors 438
Electric Light Fitting Manufacturers and Fitters 438

Digitized by Google

	Page.
Electric Light Fixture Makers	438
Electric Light Systems	438
Electric Dynamo Machines	438
Electric Street Lamps Manufacturers	439
Electric Switch Manufacturers	439
Electric Works	439
Electrical Contractors and Dealers	439
Electrical Glass Manufacturers and Dealers	439
Electrical Instrument Manufacturers	439
Electrical Schools	440
Electrical Supplies	440
Electricians	441
Electricians' Authors	444
Electro-Magneto Machines	444
Electro Medical Apparatus Makers	444
Electro Motor Manufacturers	445
Electropaths	445
Electro Silicon Manufacturers	445
Electroliers and Chandeliers	445
Electrotypers	445
Emery and Crocus Manufacturers	446
Engine Makers—Caloric	446
Engine Makers—High Speed	446
Engine Makers—Steam	446
Engineers—Electric Light	447
Engineers—Electrical	447
Engineers—Mechanical	447
Engineers—Telegraph	448

F.

Feld Spar Dealers	448
Felt Makers	448
File Makers	448
Flexible Gas, Speaking, Telephone, &c., Tube Makers	449

G.

Galvanizers	449
Gas Engines	449
Gelatinized Fibre	449
German Silver Manufacturers	449
German Silver Wire Manufacturers	449
Glass Benders	449
Glass Blowers	449
Glass Case Makers	449
Glass Cutters	449
Glass Founders	449
Glass Manufacturers	449
Glass Shade Makers and Dealers	450
Graphite Manufacturers	450
Gutta Percha Manufacturers	450

I.

India Rubber Brokers and Dealers	450
India Rubber Goods Makers	451
Indigo—Importers of	451
Injectors and Ejectors	451
Ink—Printing—for Telegraphs	451
Ink—Writing	451
Insulator Manufacturers	451
Inventors—Electrical	451
Iridium Manufacturers	451
Iron Pipe Manufacturers	451
Ivory Turners—Electrical Uses	452

	Page.

L.

Lamp Black	452
Lamp Post Manufacturers	452
Lead Pipe Manufacturers	452
Leather Belting Manufacturers	453
Lightning Rod Manufacturers	453

M.

Machine Manufacturers	453
Machine Screw Manufacturers	453
Magnet Manufacturers	453
Magnetic Clothing	453
Magnetic Curative Appliance Manufactrs.	453
Manganese—Grinders of	453
Manifold Paper Manufacturers	453
Map and Chart Engravers	453
Mathematical Instrument Makers	454
Medical Battery Manufacturers	454
Medical Electricians	454
Merchants—Manganese	454
Merchants—Mica	454
Metal Dealers	454
Metal Punches	455
Metal Sashes	455
Metal Spinners	455
Metal Workers	455
Metallic Packing Merchants	455
Metalline	455
Mineral White	455
Mineral Wool	455
Mineralogists	455
Model Makers	455

O.

Oil Merchants	455
Opticians	455

P.

Paraffin Wax Manufacturers	456
Patent and Design Registration Agents	456
Patent Solicitors	456
Pattern Makers	459
Philosophical Apparatus	459
Phosphor Bronze Manufacturers	459
Photographic Companies	459
Photographic Engravers	459
Platers in General	460
Platinum Foil Manufacturers	462
Platinum Refiners	462
Platinum Wire Manufacturers	462
Platinum Wire and Plate for Sale	462
Plumbago Merchants	462
Pneumatic Call Bell Makers	462
Powder Manufacturers	462
Potteries—for Porous Cups	462
Printers	463
Promotors and Brokers	463
Publishers of Scientific Books	463
Purchasing Agents	463

Digitized by Google

	Page.
R.	
Railroad Offices—Chief	463
Railroad Offices—Superintendents	465
Railroad Supplies	467
Railway Signal Manufacturers	467
Railway Telegraph Superintendents	467
Rivet Manufacturers	468
Rubber Belting and Rubber Manufacturers	468
Rubber Fabrics	468
S.	
Scientific Newspapers, Periodicals and Publications	468
Screw Manufacturers	468
Shafting, Pulleys, etc	469
Silver Plate Ware Manufacturers	469
Smelters	469
Solder Manufacturers	469
Spelter Manufacturers	469
Steam Gauges	469
Steam Packing	469
Steam Pipe and Boiler Covering Makers	469
Steamship Lines	469
Steel Importers	470
Steel Manufacturers	470
Street Lamp Manufacturers	470
Sulphate of Copper Merchants	470
Sulphur Dealers	470
Sulphur Refiners	470
Switch Manufacturers	470
T.	
Talc Merchants	470
Tallow and Grease Merchants	470
Telegraph Agents	470
Telegraph Companies	470
Telegraph Contractors	472
Telegraph Engineers	472
Telegraph Instrument Makers	472
Telegraph Pole Manufacturers	472
Telegraph Submarine Cable Manufacturers	472
Telegraph Supplies	472
Telegraph, Telephone and Electric Light Supplies	473
Telegraph Wire Manufacturers	473
Telegraphic Code Ciphers	473
Telegraphic Construction Tool Makers	473
Telephone Apparatus Makers	473
Telephone Brackets and Pins	474
Telephone Cabinet Work	474
Telephone Companies	474
Telephone Supplies	474
Telephone Wire Manufacturers	474
Tin Foil	474
Tin Plate Manufacturers	474
Tool Manufacturers	474
Tube Expanders	474
Tube Makers—Brass and Copper	475
Tubes—Seamless—Copper and Brass	475
Turners	475
V.	
Vulcanized India Rubber Manufacturers	475
W.	
Wire Manufacturers	475
Wire Manufacturers—Copper	476
Wire Manufacturers—Galvanised	476
Wire Manufacturers—Insulated	476
Wire Screens	476
Wire Workers	476
Wood Cuts—Dealers	477
Wood Engravers	477
Z.	
Zinc Manufacturers	478
Zinc Rod Manufacturers	478

INDEX TO

CANADIAN CLASSIFIED TRADES.

	Page.
Electric Alarms, Batteries, Insulated Wires, Zincs, Carbons, &c.	587
Electric Bells, Signals, &c.	587
Electric Belts	587
Electric Telegraph Instruments	587
Electricians	587
Electro-Magnetic Machines	587
Electroplaters	587
Electrotypers	587

Digitized by Google

L'ELECTRICIEN:

GENERAL

ELECTRICAL REVIEW,

Published (in French) the 1st and 15th of every Month.

SUBSCRIPTION:

£1 PER ANNUM,

INCLUDING POSTAGE.

(For Countries not included in the Postal Union, £1 4s. 0d.)

EDITORIAL COMMITTEE:

Messrs. E. MERCADIER, C. M. GARIEL, A. NIAUDET, Dr. DE CYON and GASTON TISSANDIER.

SECRETARY:

M. E. HOSPITALIER,

Engineer of Arts and Manufactures.

EDITOR'S OFFICES:

25, AVENUE DE L'OPERA, PARIS.

ENGLISH CORRESPONDENT AND AGENT:

J. A. BERLY, C.E., A.S.T.E., &C.

16, NEW BRIDGE STREET, BLACKFRIARS,

LONDON, E.C.

Digitized by Google

TABLE

DES

PROFESSIONS FRANÇAISES.

PARIS.

	Page.
A.	
Accumulateurs d'Electricité	591
Aimants (Fab. d')	591
Allumoir—Electrique	591
Appareils servant aux mesures électriques	591
B.	
Bains Electriques	591
Boussoles	591
Brevets d'Invention	591
C.	
Caoutchouc et Gutta-Percha Bruts	592
Caoutchouc manufacture	592
Carbons électriques	592
Compteurs de Tours	592
Courroies pour transmission de mouvement	592
Cristalleries	592
Cuivre	592
E.	
Eclairage Electrique	592
Electriciens	593
Électricité appliquée aux sciences, à l'industrie, à la medicine et aux arts	593
Electricité Médicale	594
Electro—Chimie	594
Electro—Metallurgie	595
F.	
Fils d'Acier	595
Fils de Fer	595
Fils Electriques	595
G.	
Galvanoplastie	596
Gutta Percha	596
H.	
Horlogerie Electrique	596
I.	
Instruments pour la Physique et la Chimie	596
Instruments de Précision	596
J.	
Journaux, Revues et Bulletins Scientifiques	597

	Page.
L.	
Laminoirs	597
Libraires et Editeurs	597
Lumière Electriques	597
M.	
Machines Magnéto-Electriques et Dynamo-Electriques	598
Manganèse	598
Mécaniciens	598
Mercure	599
Métaux	599
Minium	600
Moteurs à Gaz	600
Moteurs Electriques	600
N.	
Nickel	600
Nickeleurs et Nickelure	600
P.	
Paratonnerres	601
Phares—Constructeur de	601
Phonographe	601
Piles Electriques	601
Platine	602
Plomb—Mines et Fonderies	602
Produits Chimiques	602
S.	
Sciences (Fab. d'instruments de)	603
Signaux pour Chemins de Fer	603
Sociétés Savantes	603
Sonneries et Signaux électriques	603
T.	
Télégraphie (Appareils et fournitures de)	604
Télégraphie Pneumatique	605
Téléphones	605
Tréfilerie de Fils d'acier, de fer, de laiton, et de Zinc	606
Tubes et Tuyaux	606
V.	
Verreries	606
Z.	
Zinc (Mines et Usines)	606

Digitized by Google

TABLE

DES

PROFESSIONS FRANÇAISES.

DÉPARTEMENTS.

Page.

B.

Brevets d'invention 607

C.

Caoutchouc 607
Courroies (Fab. de) 607
Courroies Mécaniques 607
Cuivre (Fonderies de) 607
Cuivre (Mines de) 608

E.

Electriciens (Constructeur d'appareils électriques) 608
Electricité (Application de l') 608
Electricité Médicale 608
Electro-Chimie 608
Entrepreneurs d'Eclairage Electrique 608

F.

Fils Electriques 608

G.

Gutta Percha 608

I.

Ingénieurs—Chimistes 608
Instruments de Chimie 608

L.

Lumière Electrique 608

M.

Machines Magnéto-Electriques, etc. 608
Manganèse 608

Page.

Mécaniciens 608
Mécaniciens—constructeurs 609
Métaux 609
Minium (Fab. de). 609
Moteurs Electriques 610

N.

Nickel 610

O.

Optique et de Sciences, etc. 610

P.

Piles Electriques 610
Platine 610
Plomb 610
Porcelaines et Cristaux 610
Produits Chimiques 610

S.

Sonneries Electriques 610

T.

Télégraphie (Appareils, etc.) 610
Téléphones 611
Tréfilerie d'Acier 611
Tréfilerie d'Or et d'Argent 611
Tubes et Tuyaux 611

V.

Verreries (Fab. de) 611
Verreries (March. de) 611

Z.

Zincs 611

Digitized by Google

TABLE

DES

PROFESSIONS BELGIQUES.

	Page.
A.	
Appareils Servant aux Mesures Electriques	623
E.	
Electriciens	623
M.	
Machines Magnéto-Electriques et Dynamo-Electriques	623
P.	
Piles et Accessories	623
T.	
Télégraphie Signaux	624

TABLE

DES

PROFESSIONS RUSSES.

	Page.
A.	
Analytical Chemists	625
C.	
Chemists	626
Chemical Glass Manufacturers	625
Chemical Merchants	625
E.	
Electricians	625
Electric Bell Manufacturers	625
Electric Carbon Manufacturers	625
Electrical Instrument Makers	625
Electric Light Companies	625
Electrical Machine Manufacturers	625
Electrical Toys	626
Electrotypers	626
Electro-Medical Apparatus	626
Engineers	626
I.	
India Rubber Manufactories	626
P.	
Patent Boiler Makers	626
Patent Offices	626
S.	
Steam Engine Boiler Makers	626
T.	
Telephone Companies	626

Digitized by Google

INHALTS-VERZEICHNISS

DER

GESCHÄFTE.

	Page.
A.	
Accumulator- u. Batterie-Fabrikanten ..	631
Asbest—Fabriken und Händler	631
B.	
Beleuchtungs-Artikel	631
Bergbau u. Hüttenbetrieb	631
Blas- und Pressformer	633
Blitzableiter-Fabriken	633
Braunstein	633
C.	
Chemicalien—Händler, etc.	633
Chemiker	633
Chemische Fabriken	634
D.	
Dampfmaschinen	638
Dampfkessel	639
Dampf- u. Heizungs-Anlagen	639
Draht-Fabriken	639
Drahtseile, Kabel, etc.	640
Drahtstiften-, Nägel- und Nietenfabrikation	641
Draht- u. Drahtwaarenfabrikation	641
Dynamo-Maschinen	641
E.	
Eisenbahnbau-Unternehmer	641
Elektro-Techniker	641
Electrische Agenturen	641
Electrische Apparate	641
Electrische Batterien	642
Electrische Beleuchtung	642
Electro-medicinische Apparate	642
Erd-Arbeiten—Unternehmer	642
Etuisfabriken	642
F.	
Filz	642

	Page.
G.	
Galvanische Institute	642
Galvanische Kohlen	643
Galvanoplastiker	643
Gasleitungs-Fabriken	643
Gasleitungs-Unternehmer	643
Gasmotoren	643
Gelb- und Rothgiesser für Glocken, Kessel, etc.	643
Gerbereien	643
Glasfabriken	643
Glockengiesser	644
Glühlichtlampen	644
Gummi, Gutta Percha und Kautschuk ..	644
Gürtler	644
Gusseisen	644
H.	
Haustelegraphen-Fabriken	644
Heissluftmaschinen	645
Holzkohlen-Brennereien	645
I.	
Ingenieure	645
K.	
Kupfer	645
Kupferschmiede	645
L.	
Laboratorien	646
M.	
Maschinenbauwesen	646
Maschinen-Rieme	646
Maschinentheile	646
Maschinen- & Modell Zeichner	648
Mechaniker	648
Metall-Affinir-Anstalten	648
Metalle—Fabriken und Handlungen	648
Motoren	648
Münzstätten	649

Digitized by Google

Page.

N.

Nägel 649
Nickel 649

O.

Oel 649
Optische und meteorolog. Instrumente .. 649

P.

Patent-Bureaux 650
Pergament 650
Polir- und Schleifmaschinen 650
Porzellan-, Steingut- und Thonwaaren-fabrikation 650
Physicalische Apparate 650

R.

Regulator-Fabrikanten 650
Röhren—Eisen 650
Röhren—Messing und Kupfer 651
Röhren—Thon 651
Röhren—Zinn und Blei 651

S.

Salpeterfabrikation u. Salzmühlen 651
Schmelzer und Probirer 651
Schmieden 652
Schrauben 652
Schrauben und Feilen 652
Seiler und Tauer 652
Signale, Weichen und Schienen 652
Steingut 652

T.

Talg 652
Technische Zeitschriften 652
Telegraphenbau-Anstalten 653
Telegraphen-Glocken 653
Telegraphen und Isolirte Dräthe 653
Telephon-Anlagen 653
Telephonfabriken 654
Therapeutische Apparate 654
Thran und Talg 654
Turbinen u. Wasserräder 654

W.

Waagen 655
Walzen und Walzwerke 655
Werkzeug-Fabriken 656
Wissenschaftliche Apparate 656

Z.

Zinkereien 656

Digitized by Google

WOODHOUSE & RAWSON

11, QUEEN VICTORIA STREET,
LONDON, E.C.,

AND

3, HIGH STREET, BELFAST.

MANUFACTURERS OF

DYNAMOS	COVERED WIRES
ARC LAMPS	CARBONS
INCANDESCENT LAMPS	BATTERIES
SWITCHES & METERS	BRACKETS & FITTINGS.

WOODHOUSE & RAWSON'S PATENT INCANDESCENT LAMP.

SUPPLIERS OF

ALL ELECTRICAL APPLIANCES.

INSULATORS	CABLES	GLOBES
SHACKLES	WIRE	GLASS
JARS	POLES	EBONITE
POROUS POTS	FITTINGS	ASBESTOS.

WOODHOUSE & RAWSON'S PATENT SPLIT INSULATORS.

Special Dynamo and Gas Engine Machine Oil.

SPECIALLY COVERED WIRE, BOTH FIREPROOF AND WATERPROOF.

A LARGE QUANTITY OF WIRE, INSULATORS & OTHER REQUISITES KEPT IN STOCK.

CONTRACTORS

ESTIMATES GIVEN FOR

ERECTING DYNAMOS & SHAFTING, RUNNING CIRCUITS, &C.

ALSO FOR

TEMPORARY AND PERMANENT LIGHTING ON EITHER ARC OR INCANDESCENT SYSTEMS.

Digitized by Google

INDEX TO ADVERTISERS.

TABLE SPÉCIALE DES ANNONCES.

INHALTS-VERZEICHNISS ZUM ANNONCENTHEIL.

E.—When writing to firms, whose Names and Addresses you have taken from this book, you are particularly requested to state that you saw them in "BERLY'S DIRECTORY."

F.—Lorsque vous correspondrez avec une maison dont vous aurez trouvé le nom dans l'Annuaire Electrique ou dans les annonces du dit ouvrage, veuillez être assez bon pour mentionner que vous avez trouvé le nom dans le "BERLY'S DIRECTORY."

G.—Bei Correspondenzen an Firmen, deren Namen und Adresse man diesem Buche entnommen, wird Jeder freundlichst gebeten, zu constatiren, dass man selbige in "BERLY'S DIRECTORY" sah.

NAMES.

	Position.
CROSSLEY BROS. ("Otto" Silent Gas Engine)	outside of Covers.
FAURE ELECTRIC ACCUMULATOR COMPANY, LIMITED	inside of Front Cover.
PATERSON & COOPER (Manufacturing Electricians)	page opposite Front Cover.
ELMORE, WM. (Electrolytic Company)	inside of Back Cover.
RUSTON, PROCTOR & CO. (Engineers)	page opposite Back Cover.
ANGLO-AMERICAN BRUSH CORPORATION, LIMITED	facing British Title Page.

A.

	Section.	Page.
Allen, W. H. & Company	British	402
Allison, Wm. L.	American	582
Annuaire des Commercants de Paris	French	620
Ansonia Brass and Copper Company	American	574
Apps, A. & Company	British.	420
Armstrong, Stevens & Company	British	355
Arnoux & Hochhausen Electric Company	American	575
Ashton, Thos. A.,	British	385

B.

Barraclough, Thomas & Company, Limited	British	359
Bastin, Charles	British	362
Baudet, Cloris	British	396-7
Baudet, Cloris	French	618-9
Becker, F. E. & Company	British	422
Beech, George	British	417
Berly, J. A.	British	398, 496-7
Berly, J. A.	American	571
Berly, J. A.	French	614
Berly, J. A.	Belgian	622

Digitized by Google

NAMES.	Section.	Page.
Berry, F. H.	British	373
Binko, Siegel & Company	British	387
Binney & Son	British	359
Birkbeck Bank	British	384
Bogart, A. L.	American	572
Booth, James & Co.	British	165
Boston and Sandwich Glass Company	American	581
Boulton Carbon Company	American	579
Bourne, Joseph & Son	British	357
Bowen, Wm. J.	American	578
Brailsford, J. R.	British	417
Bridgeport Brass Company	American	576
British Electric Light Company	British	405
Brotherhood, Peter	British	322
Brush Electric Company	American	570
Bryden, John & Sons	British	357
Buck, H. C.	British	408
Bury, H.	British	323
C.		
Caloric Engine & "Siren" Fog Signal Company, Limited	British	98
Carlyle, W. A.	British	399
Chalfont Endless Telegraph Paper Company	British	409
Challis Brothers	British	377
Clark, W. G.	American	573
Coe Brass Manufacturing Company	American	583
Compagnie Générale des Horloges et Forces Pneumatics	French	616—617
Consolidated Telephone Construction and Maintenance Company, Limited	British	320A
Conti, A. E.	British	408
Courtney & Trull	American	578
Crompton Winfield Electric Light Association	British	394
Crystal Porcelain Pottery Company, Limited	British	378
Cumming & Brinkerhoff	American	424
Cutting, R. C. & Co.	British	364
D.		
Dale, H. & E. J.	British	354
Dale, R. F. & Company	British	371
Davy, Paxman & Company	British	351
Davis & Timmins	British	367
Davis & Watts	American	580
Day, Davis & Hunt	British	371
Defries, J. & Sons	British	353
Delano & Haines	American	574
Dowson Economic Gas Company, Limited	British	360
Dudgeon, Richard	British	372
Duncan Brothers	British	401
Duncan, Watson & Company	British	377
Duplex Electric Light, Power and Storage Company, Limited	British	96
Dupuy, C.	French	621
E.		
Eastern Telegraph Company, Limited	British	306—7
Economic Electric Light and Power Company	British	414
Electric Carbon Manufacturing Company	British	356
Electric Carbon, Storage & Apparatus Manufacturing Company of Scotland	British	379
Electric Light Carbon Company	British	375
Electric Lighting, Supply and Fitting Company, Limited	British	376
Electric and Magnetic Appliance Stores	British	419
Electric Sun Lamp and Power Company	British	393
Electrical Power Storage Company, Limited	British	361
Electrical Review	British	376
Electrical Supply Company of New York	American	579
Electrical Trading Company, Limited	British	421

Digitized by Google

NAMES.	Section.	Page.
Electro Dynamic Company of Philadelphia	American	575
Engineering	British	xiv.
F.		
Etherington, John	British	97
Faraday & Son	British	357
Felten & Guilleaume	British	96
Fleischmann, A. F.	American	585
Fox, Edwin & Company	British	302
Foxcroft, W. M.	British	415
G.		
Garden and Gaye	British	349
Garnham & Company	British	412
Gent, J. T. & Company	British	395
Glover, Walter T. & Company	British	166
Goodwin, H. G.	British	415
Greene, Henry & Son	British	23
Griffin, Charles & Company	British	164
Griffith & Company	British	375
Griggs Electro-Magnetic Theraputic Establishment	British	416
Groves, W.	British	403
Gulcher Electric Light Company, Limited	British	352
H.		
Hadfield's Steel Foundry Company, Limited	British	399
Hall, C. E.	British	384
Hall, W. B.	American	577
Harburg India Rubber Comb Company (F. Winter)	British	23—97
Harrison, Cox-Walker, & Company	British	362
Heap, C. R. (Griscom's Motor)	British	xl.
Heisler Electric Light Company	American	579
Henley's, W. T., Telegraph Works Company	British	411
Hepburn & Gale	British	405
Hett, Charles L.	British	410
Hindley, E. S.	British	391
Hodson's Patent High Speed Engine (Mr. N. Earle, agent)	British	22
Houghton, Geo., & Son	British	360
Houghton, Mifflin & Company	American	573
Hughes, John & Joseph	British	395
Hulett, D., & Company	British	363
Humm's Turco-Electric Baths	British	388
I.		
Indestructible Packing Company	British	416
J.		
Jarman, A. J.	British	412
Johnson & Phillips	British	381
Johnson, W. J.	American	572
Jonas & Colver	British	370
K.		
Kabath, N. de	British	419
Kidder's Electrical Depôt	American	581
Knight & Company	British	413
Knowles, William	American	582
L.		
Laing, White, & Wharton	British	390
Lewis, G. C. & Son	British	415
Litholine Company	British	384
Lloyd & Lloyd	British	388

Digitized by Google

NAMES.	Section.	Page.
London Electric Wire Company	British	24
London and Globe Telephone Company, Limited	British	320B
London and Provincial Electric Lighting and Power Generating Company, Limited	British	382
M.		
Maling, C. T.	British	165
Marsh and R. J. Smith	British	374
Martin, A.	British	416
Medical Constant Current Electric Company, Limited	British	385
Mendel, Berthold	German	664
Meiriam, G. & C. & Co.	American	575
Messer & Thorpe	British	349
Metropolitan (The)	British	417
Minner, Wilh.	German	664
Morgan, Robert & Son	British	395
Mosses & Mitchell	British	385
Mourlon & Cie.	Belgian	624
N.		
Newman, A. G.	American	580
Nobes, Homan & Hunt	British	366
Norton Ventilator Company, Limited	British	379
O.		
Oldfield, W. & Walton—(R. Barr, Agent)	British	354
Olrick, Lewis & Co.	British	370
Operator (The) W. J. Johnson	American	585
Ormiston, P. & Co.	British	386
P.		
Paine & Ladd	American	578
Patrick & Son	British	403
Pearson, James	British	414
Phillips Bros.	British	ii.
Phosphor Bronze Company, Limited	British	303 & 321
Pilsen Joel Electric Light Company, Limited	British	vi.
Platho & Wolff	German	664
Popplewell, Colton & Co.	British	373
Post & Co.	American	577
Q.		
Quirk, Barton & Co.	British	375
R.		
Railway Supplies' Journal (The)	British	400
Ramsden, Camm & Company	British	373
Ransome, Head & Jefferies	British	10
Ransome, Josselyn & Woods	British	353
Ratcliff, Edmund	British	379
Raynor, H. M.	American	577
Reading Iron Works Company, Limited	British	403
Redding, Jerome & Company	American	582
Redman & Kenny	American	583
Reid Brothers	British	418
Rickard, William	British	350
Robey & Company	British	xxx.
Rogers, F. M.	British	371
S.		
Samson Low, Marston, Searle & Rivington	British	164
Sautter, L. Lemonnier et Cie.	French	620
School of Telegraphy & Electrical Engineering	British	323
Schooley, W. D.	American	573

Digitized by Google

NAMES.	Section.	Page.
Selig, Sonnenthal & Co.	British	389
Shaples, Charles H., F.C.S.	British	377
Sharples, G.	British	388
Sheath Brothers	British	405
Shippey Brothers & Company	British	404
Signal Engineering Company	British	399
Simmons, Charles J.	British	303
Société d'Etudes et Constructeurs Electriques	French	620
Société de l'Electrophone	French	615
Standard Fyfe-Main Electric Lamp	British	383
Statham, W. E.	British	359
Sterne, L., & Company, Limited, (Clerk's Patent Gas Engine)	British	95
Stevens, F. A.	British	360
Stiff, J. & Sons	British	356
Swan United Electric Light Company, Limited	British	358
T.		
Tangyes, Limited	British	380
Tasker, Sons & Co.	British	392 & 413
Taylor & Challen	British	365
Taylor & Company	British	370
Taylor, Charles	British	355
Thompson & Boult	British	413
Tillotson, L. G., & Company	American	581
U.		
Union Electric Manufacturing Company	American	572
United Asbestos Company, Limited	British	368
United States Electric Lighting Company	American	584
Universal Inventors and Patentees Financial Company, Limited	British	iv
V.		
Varley, O. & F. H.	British	419
Victor Gas Engines Company	British	35
W.		
Waterston, George & Sons	British	366
Webb & Son	British	412
Western Electric Company	American	584
Willard, F. L.	British	413
Williams, Charles, Junr.	American	580
Wilson, Alexander & Co.	British	369
Witty & Wyatt	British	408
Woodhouse & Rawson (Facing Index to Advertisers)	British	xxiv.

Digitized by Google

ROBEY & CO.,

GLOBE WORKS, LINCOLN, ENGLAND,

SOLE MANUFACTURERS OF THE

Patent "Robey" Electric Light Engine.

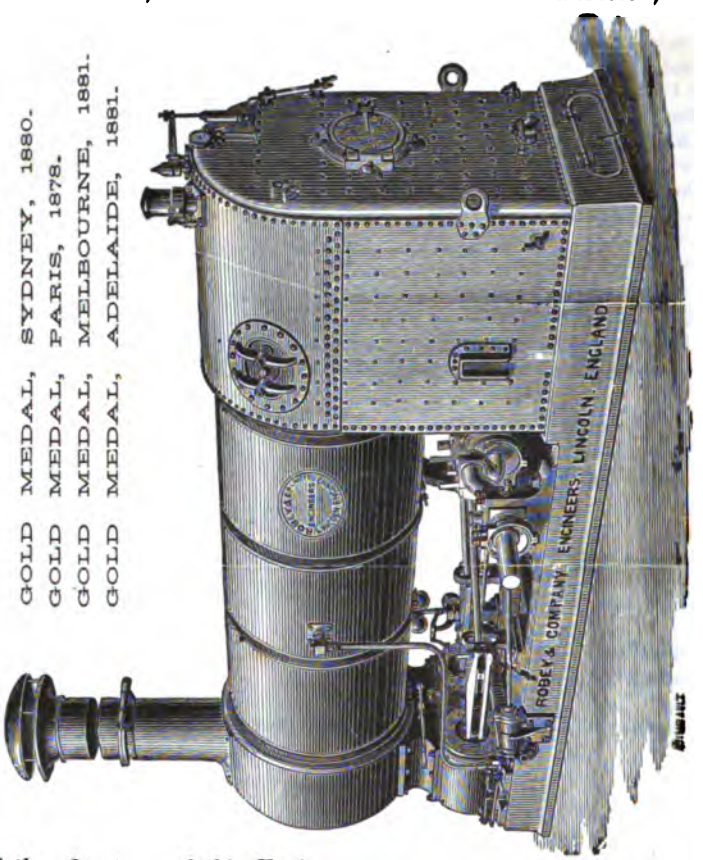
Fitted with Equilibrium Throttle Valve and Governor, which ensures the greatest steadiness in working.

HIGHEST AWARD, PARIS ELECTRIC LIGHT EXHIBITION, 1881.
HIGHEST AWARD, CRYSTAL PALACE ELECTRIC LIGHT EXHIBITION, 1882.

HIGHEST AWARD, PARIS ELECTRIC LIGHT EXHIBITION, 1881.
HIGHEST AWARD, CRYSTAL PALACE ELECTRIC LIGHT EXHIBITION, 1882.

Upwards of 7,500 Engines of large sizes now at work.

GOLD MEDAL, SYDNEY, 1880.
GOLD MEDAL, PARIS, 1878.
GOLD MEDAL, MELBOURNE, 1881.
GOLD MEDAL, ADELAIDE, 1881.



No expensive Foundations, Boiler House, or High Brick Chimney required.

Some of the advantages of this Engine are---

SMALL FIRST COST.
SAVING OF TIME AND EXPENSE IN FIXING.
EASE, SAFETY AND ECONOMY IN WORKING.
GREAT SAVING IN FUEL.

PHOTOGRAPHS AND PRICES ON APPLICATION TO

ROBEY & CO., Globe Works, Lincoln, ENGLAND.

HIGHEST AWARD, PARIS ELECTRIC LIGHT EXHIBITION, 1881.
HIGHEST AWARD, CRYSTAL PALACE ELECTRIC LIGHT EXHIBITION, 1882.

Digitized by Google

PRESS OPINIONS.

The Times, 18*th November*, 1881.

AN ELECTRICAL DIRECTORY.—The remarkable progress made of late years in the practical development of electrical science, which culminated in the magnificent Electrical display in Paris, and the new industries brought into existence by that development, have at length rendered an Electrical Directory a necessity to the vast number of persons directly and indirectly engaged or interested in the various Electrical industries. In view of this, Mr. J. A. Berly, of 16, New Bridge Street, E. C., whose name is well known in connection with Electric Lighting, is preparing for publication at the opening of the new year the first issue of "The Electrical Directory and Advertiser of England." It is to form a complete record of all the industries directly and indirectly connected with Electricity and Magnetism, and the names and addresses of manufacturers. It will contain an historical account of the development of Electric Lighting, together with a number of tables and formulæ useful to electricians, and is calculated to meet a now palpable want.

The Electrician, 19*th November*, 1881.

ELECTRICAL DIRECTORY OF ENGLAND FOR 1882.—Under this title Mr. J. A. Berly, C.E., &c., is about to issue a work which he calls "The Electrician's *Vade Mecum*," and which will contain a complete record of all the industries directly or indirectly connected with Electricity and Magnetism, together with the names and addresses of manufacturers, &c. We have been favoured with proof sheets indicative of the general plan of the work. At the beginning of the book there will be a general alphabetical index to the trades, which are themselves arranged in alphabetical order in the body of the work; for instance, say we want to find the manufacturers of electric lamps, we refer to the index, and under the head "Electric Lamp Manufacturers" we find a cross reference to arc and incandescant lamps. Suppose we wish to find the former we turn to A, and are referred to page 2 (say), on turning to page 2 we find the names of manufacturers arranged in alphabetical order, and so on for all the numerous trades that have of late years become connected with the various applications of Electricity that have sprung up. It is not easy to judge of the value of a work by a few specimen pages, and we cannot, therefore, express any opinion in this direction. What we can say, however, is that the idea is a good one, and if well carried out should supply a felt want. The book will be of a handy size (demy 8vo), and the cost to subscribers will be 3s. 6d. It is intended to bring it out once every year, the forthcoming issue being for 1882. We reserve our opinion of the book itself until it is in our hands. In the meantime we wish Mr. Berly all success.

Engineering, 18*th November*, 1881.

AN ELECTRICAL DIRECTORY.—We learn that Mr. J. A. Berly, of 16, New Bridge Street, London, the well known Electrical engineer, is preparing for issue in January next an Electrical Directory which shall include amongst other matters the names and addresses of engineers and manufacturers connected directly or indirectly with Electricity and Magnetism. When it is considered how many and varied are the industries included within these limits, it will be seen that the work will be one of considerable importance, while the great development in practical electrical science during the last few years has rendered the publication of such a directory almost a necessity. In addition to the directory proper, the book will contain a review of progress in Electricity and Magnetism, a collection of rules and formulæ, and other matter which will make it useful as a work of reference, in addition to the main purpose it is intended to serve. That Mr. Berly has undertaken this work is a sufficient guarantee that it will be thoroughly carried out.

Digitized by Google

New York Review of the Telegraph and Telephone, 15*th March*, 1882.

Professor J. A. Berly, C.E., B.A., A.S.T.E., &c., has just completed his new edition of the ELECTRICAL DIRECTORY AND ADVERTISER OF ENGLAND, which is one of the most valuable works of the kind published. It is a publication very much in demand, and its appearance just now is very timely. Those desiring the book can be supplied by Professor Berly, 16, New Bridge-street, London, E.C., England.

Iron, 17*th March*, 1882.

J. A. BERLY'S BRITISH AND CONTINENTAL ELECTRICAL DIRECTORY AND ADVERTISER. First issue, 1882. London: 16, New Bridge-street, E.C.—The great progress made recently in Electrical science, the new industries it has brought into existence, and the great impetus thus given to a large number of auxiliary trades and manufactures more or less directly connected with them, had made the issue of such a directory as that of which the first issue is now placed before us merely a question of time. Mr. Berly has taken time by the forelock, and produced a book of reference in which all the information which those new trades require will be readily found. His work ought to, and will, command a ready sale.

Colliery Guardian, 17*th March*, 1882.

BRITISH AND CONTINENTAL ELECTRICAL DIRECTORY.—This is a work called forth by the novel phase of Electrical science which has in the present generation burst upon public notice. Such a book would have been impossible if not inconceivable in the times of our fathers, and its presence among us is at once a proof and an illustration of the rapid advance of Electrical science and its transit from the realms of theory into the beaten track of practice. Mr. Berly, who is an Electrician of some note, calls the present work "The Electrician's *Vade Mecum*," a title which is justly claimed when we glance through its pages, as they contain a full record of all the industries directly or indirectly connected with Electricity and Magnetism, with the names and addresses of manufacturers, to which are added several valuable scientific items. At page 25 an interesting and ample review of Electrical and Magnetic progress is given, with important facts concerning their origin and development as agents of power, the author starting from the early date of 2,600 B.C. This summary is more extended than is intended in future years, the notes in this department of the book being designed to cover only the events of the current year. The author gives particulars here of journals and societies which have become associated with Electrical science, referring also to authors who have become eminent by their knowledge of its laws or application of its power. One special aid which Mr. Berly gives to the correction of public opinion on Electric Lighting is an explanation in several cases of the causes of failures which have been sources of discouragement in such places as Westgate-on-Sea and the Billingsgate Fish Market. The causes of failure or partial failure are intelligently explained and discouragement with respect to the principle and applicability of the light for public use shown to be premature. The author's account of the lighting of *The Times* printing office is as follows:—

"Before leaving the year 1879, we will mention the lighting of *The Times* printing offices by means of the Rapieff regulators, fed by Gramme alternating current machines. This system was first tried early in the year; it evoked great curiosity, crowds of people taking an interest in the question flocking to see it, but it was then only in its very early experimental stage, and it has required all its inventor's skill and one year and a half continuous personal supervision and attendance to bring it to give the satisfactory results which it, we understand, now gives. Twenty-eight such lights are nightly lighting the compositors' and press rooms of that immense establishment, and these are maintained by two Gramme machines of the alternating type, and each of the power of twenty Jablochkoff lights."

Respecting the Faure accumulator, the author gives some useful information. He says:

"Another interesting exhibit was the Faure accumulator, but the novelty which attached to it was somewhat rubbed off by the noise which was made round it, and its previous exhibition in London. By means of this accumulator, which is an improved form of Planté's historically known secondary battery, Electricity can be stored in quantities depending on the number of cells composing the battery, and used at discretion afterwards. The process of charging them lasts some hours, and they do not lose rapidly when charged. One box of four cells was, in June last, despatched fully charged from Paris to Glasgow, and Sir William Thomson's long sensational letter to *The Times* newspaper upon the subject, published by that newspaper on the 9th June last is still present to everybody's mind. Sir W. Thomson also

Digitized by Google

dwelt at great length on the Faure accumulator at the meeting of the British Association which took place at York in August-September of the same year. The Faure accumulator is now in use on the Pullman trains plying between London and Brighton, on the London, Brighton and South Coast Railway Company's line. The trial trip took place on the 1st December, 1881, and the twenty-nine Edison incandescent lamps, which are lighted by means of these accumulators, and were publicly exhibited on that occasion, have been in constant use since. Eighty Faure cells are located in a compartment of one carriage especially set up for the purpose."

With respect to the future of Electricity, the tone of the writer's mind is perhaps somewhat sanguine. He says:—

"Electric Lighting is progressing at a giant's pace. Gas, which has rendered immense services, will, in time, have to make room, as an illuminant, for its younger brother the Electric Light; this will certainly take some time, and, as Electricians, we are sorry to find that that very time which was left as a kind of consolation to the gas interest, and thought to be utilised by them for developing the other uses of gas, such as motive power, will be turned against it, a new infant promising well having just been born, and standing towards the gas power in the same relative position that the Electric Light stands towards gas light. The culprit is again Electricity, the infant being the Electric transmission and distribution of power, or Electro-motive power. One can easily fancy the popularity which is awaiting a machine of very great power under very small proportions, which not only requires no boiler, no coals, no fire, no driver, no chimney, &c., but even no gas, no pipes, no exhaust, and no water, and which can be set in motion by the mere turning of a switch, and can be left entirely to itself, not requiring any attendance whatever. Steam itself is likely to be superseded by the same agency, even when applied to locomotion, as we have seen with the Electric tramways and railways; and it will not be one of the least curious wonders of this century that it may and will probably have seen both the birth and death of gas and steam."

The tables and formulæ at page 43 are of considerable value, and we doubt not that this directory will have a hearty welcome from the profession and those of the commercial public who are interested in the subject.

Mining Journal 18*th March*, 1882.

British and Continental Electrical Directory.—In a volume of nearly 250 pages bearing this title Mr. J. A. Berly, of New Bridge Street has given some information which will be of great utility to all interested in the introduction and application of Electricity to the purposes of every day life. Those who have constantly made the industrial application of Electricity were naturally at a loss to guess where Mr. Berly would find material for such a work as he announced, but they have now a very satisfactory solution. They will find that the number of trades directly and indirectly connected with the application of Electricity is really enormous, for asbestos merchants, boiler non-conducting composition makers, cotton waste merchants, glass blowers, map and chart sellers, opticians, and photometer makers, coming among the number. There is a chronological sketch of the progress of Electrical discovery which will become highly interesting when filled up in subsequent years. That of the various systems now before the public the Brush is that which has the best claim to permanent adoption has frequently been stated in the *Mining Journal*, and the enormous number of the Brush lights in use, their economy, and their simplicity, has done much to confirm this view. Still further evidence is afforded by an observation in Mr. Berly's notes. He states that the tenders for electric lighting in the City were £1,410 for the Brush, £2,930 for the Jablochkoff, and £3,720 for the Siemens. The districts were adjudicated at these prices, but the Jablochkoff subsequently withdrew. Mr. Berly's volume, in addition to the directory matters, contains a large amount of information connected with the subject, so that it is really an Electrician's *vade mecum*, and as such will not fail to secure a good circulation.

The Metropolitan, 18*th March*, 1882.

We notice with great pleasure the first issue of J. A. Berly's British and Continental Electrical Directory and Advertiser, which contains a complete record of all the industries directly or indirectly connected with Electricity and Magnetism, and the names and addresses of manufacturers, &c. This work is at least what it professes to be—"the Electrician's *vade mecum*." We can cordially recommend it to the notice of all people connected with Electricity, professional or otherwise. The very useful work is to be had of J. A. Berly, 16, New Bridge-street, E.C.

Digitized by Google

Telegraphic Journal and Electrical Review, 18*th March*, 1882.

BERLY'S ELECTRICAL DIRECTORY AND ADVERTISER, (16, New Bridge-street, Blackfriars.)—In our ssue of December 1st, 1881, we took notice of a specimen page of "Berly's Electrical Directory," and xpressed an opinion then, that as far as we could judge the arrangement was all that could be desired. Now that the book is completed we have great pleasure in endorsing our former judgment, and the highest praise that we can bestow is that it ought to find a place in the libraries of all those either directly or indirectly connected with electrical science. Although not so complete as the next issue will be (a "Continental Directory" being in preparation for this), it will be found most interesting and highly useful now. Amongst it contents, the "remarks on the past years" will be found to contain much information in a concise form. The "tables and formulæ" will be of use to practical engineers. Now that so much progress is developing in electrical science amongst all classes of manufacturers and engineers, the various "trades," and "professional" lists will be found very advantageous to those desiring to know to whom to apply for apparatus or information on any particular subject. A list of electrical publication, with publishers names and prices will materially assist those studying electrical matters. The idea of such a manual is original, and its success is certain, for it is the only thing of the kind published and it well supplies a long felt want.

Daily Chronicle, 21*st March*, 1882.

From J. A. Berly, New Bridge-street—BRITISH AND CONTINENTAL ELECTRICAL DIRECTORY. The rapid strides which have been made by Electrical science during the past few years are made manifest in this very serviceable work, which already extends to over two hundred pages. Mr. J. A. Berly, the compiler, is an enthusiastic Electrician; and he believes it will be not only the light but also the power of the future. Thus he says, "It will not be one of the least curious wonders of this century that it may and will probably have seen both the birth and death of gas and steam." From the immense number of persons engaged in Electrical pursuits it is evident that the industry is now becoming one of the first importance in the country.

European Mail, 23*rd March*, 1882.

THE BRITISH AND CONTINENTAL ELECTRICAL DIRECTORY, published and compiled by Mr. J. A. Berly, the first issue of which is now before us, is an excellent and complete record of all the industries directly or indirectly connected with Electricity and Magnetism, together with the names and addresses of the various manufacturers throughout Great Britain and the Continent. In addition to a number of tables and formulæ useful to Electricians, it contains an historical account of the development of Electric Lighting and Magnetism from a very early period. The general arrangement of the book is all that can be desired, and as a handy work of reference on all matters connected with Electricity and the new industries it has brought into existence, it will be found invaluable, as no pains appear to have been spared to make it as complete and correct as possible.

Broad Arrow, 25*th March*, 1882.

As a sign of the times, it may be noted that Mr. J. A. Berly, of 16, New Bridge-street, London, has published a BRITISH AND CONTINENTAL ELECTRICAL DIRECTORY AND ADVERTISER. As it contains a complete record of all the industries directly or indirectly connected with Electricity and Magnetism, and the names and addresses of manufacturers, it may be called the "Electrician's *vade mecum*."

The Builder, 25*th March*, 1882.

BERLY'S BRITISH AND CONTINENTAL ELECTRICAL DIRECTORY AND ADVERTISER (16, New Bridge-street), 1882, shows the astounding progress made lately in Electrical science, and the large number of industries it has already brought into existence. We cannot agree with the editor in his condemnation of those inventors who are still trying to introduce certain systems of lighting dependent upon the employment of electric batteries. Improvement or discovery in this direction might very much facilitate domestic lighting. Thousands of billiard-rooms, for example, in private houses, at present scarcely usable because of the heat and bad air, are waiting for arrangements that would admit of the introduction of electric lighting.

Digitized by Google

NAMES RECEIVED TOO LATE

FOR INSERTION IN THEIR PROPER ORDER.

Anti-Friction Metal Merchants.

F.—Metal Anti-Friction.
G.—Anti-Friction-Metall-Fabrikanten.

Lohmann, C., 43, London Wall, E.C., agent for Wm. Bitter, metal manufacturer, Bielefeld, Germany; specialty, "Bitter's Anti-Friction Metal," best composition for lining bearings, &c.

Balance Makers.

F.—Balances.
G.—Waagen.

GROVES, WILLIAM, 89, Bolsover-st., W.

Chandelier, Lustre, &c., Makers.

F.—
G.—

VERITY, B. & SONS, King-st., Covent-garden, W.C.

Chemical Glass and Appliance Manufacturers.

F.—Verrerie de Chimie.
G.—Chemisches Glas.

HOUGHTON, GEORGE, & SON, 89, High Holborn, W.C..

Crucible Manufacturers.

F.—Creusets (Fab. de).
G.—Schmelztiegel—Fabr.

Morgan Crucible Co., Battersea Works, S.W.

Dynamo & Magneto Electric Machine Manufacturers.

F.—Machines dynamo et magneto électriques.
G.—Dynamo-Maschinen.

Berly, J. A., 16, New Bridge-st., E.C. The "Mather" Dynamo, for plating and electro-plating.
Cuttriss, T. & S. W., New Briggate, Leeds.
Hearington, A. B., 374, Euston-road, N.W.
Strode & Co., 48, Osnaburgh-st.; 67, St. Paul's Churchyard and 32, Cockspur-st., E.C.

Dyn. & Magn. Elect. Machine Mnfs.

Werdermann, Richard, 121, Bishopsgate-st. Within, E.C.
Willsher & Co., 2, Pancras-lane, Queen Victoria-st., E.C.
VARLEY, O. & FRED. H., Mildmay-avenue, Mildmay-st., Ball's Pond, N.
Varley, S. A. & Co., 2, Hamilton-road, Highbury-park, N.

Electric Alarms.

F.—Avertisseurs électriques.
G.—Electrische Allarm-Apparate.

Electric Warning Lamp Company, 23, Ludgate-hill, E.C. Diggin's patent.
LEWIS & SON, G. C., 1, Lowndes-terrace, Knightsbridge, S.W.
PATRICK & SON, 529, King's-road, Chelsea, S.W.
Sugg, W. & Co., Limited, Vincent Works, Westminster, S.W.

Electric Appliances—for Educational Purposes.

F.—Appareils électriques.
G.—Electrische Apparate für Schulzwecke.

Darlington, J., 1, Coleman-street-buildings, Moorgate-st., E.C.
Griffin, John J, & Sons, 22, Garrick-st,, Covent-garden, W.C.
Orme, J. & Co., 65, Barbican, E.C.
Stanley, W. F., 13, Railway-approach, London-bridge, S.E.

Electric Bell Fitters.

F.—Sonneries électriques (Entrepreneurs pour l'entretien de).
G.—Electrische Glocken—Einrichter.

BRAILSFORD, T. R., Thames Conservancy, 41, Trinity-square, E.C. New economical method of electric bell fitting.
Robisher, Joseph, 24, Garden-st., Ardwick.

Digitized by Google

Electric Bell Manufacturers.

F.—Sonneries électriques (Fab. de).
G.—Electrische Glocken—Fabr.

Brailsford, T. R. 41, Trinity-square, E.C.
HINTZE & DONOVAN, Liverpool-st., E.C., and Eagle Wharf-road, N.
LEWIS, G. C., & SON, 1, Lowndes-terrace, Knightsbridge, S.W.
PATRICK & SON, 529, King's-road, Chelsea, S.W.

Electric Brush Manufacturers.

F.—
G.—Electrische Bürsten—Fabr.

Electrical Rotary Brush Company, Limited, 60, Strand, W.C.

Electric Carbon Manufacturers.

F.—Charbons électriques (Fab. de).
G.—Electrische Kohlen.

D'HUMY, P. R. F., 21, Litchfield-st., Soho, W.; represented by Marsh & R. J. Smith, 18, New Bridge-street, E.C. *See index to advertisers.*

Electric Clocks.

F.—Horloges électriques.
G.—Electrische Uhren.

Sugg, W., & Co., Limited, Vincent Works, Westminiter, S.W.

Electric Lamp Manufacturers—Arc.

F.—Lampes électriques à Arc (Fab. de).
G.—Electrische Lampen—Arc.

BERLY, J. A., 16, New Bridge-st., E.C.
D'HUMY, P. R. F., 21, Litchfield-st., Soho, W.; represented by Marsh & R. J. Smith, 18, New Bridge-st., E.C. *See index to advertisers.*
Levey, Charles L., 38, Woburn Place, W.C.
Stokes Bros., 14, Finsbury-square, E.C.
Willsher & Co., 2, Pancras-lane, Queen Victoria-st., E.C.

Electric Lamp Manufacturers—Incandescent.

F.—Lampes électriques à Incandescence (Fab. de).
G.—Electrische Lampen—Glühlicht.

D'HUMY, P. R. F., 21, Litchfield-st., Soho, W.; represented by Marsh & R. J. Smith, 18, New Bridge-st., E.C. *See index to advertisers.*

Electric Light Apparatus Manufacturers.

F.—Eclairage électrique (Fab. d'appareils d').
G.—Apparate für electrische Beleuchtung.

VERITY, B. & SONS, King-st., Covent-garden, W.C.

Electric Light Fittings, &c.

F.—Eclairage électrique (Fab. d'appareillage etc.).
G.—Electrische Beleuchtung—Ausrüstungsgegenstände.

VERITY, B. & SONS, King-st., Covent-garden, W.C.

Electric Light Systems.

F.—Eclairage électrique (Systems d').
G.—Electrische Beleuchtung—Systeme.

D'HUMY, P. R. F., 21, Litchfield-st., Soho, W.; represented by Marsh & R. J. Smith, 18, New Bridge-st., E.C. *See index to advertisers.*
LAING, WHITE, & WHARTON, 8 & 9, Holborn-viaduct, E.C. *See index to advertisers.*

Electric Signs.

F.—Signaux électriques.
G.—Electrische Signale.

Willing, J., 366, Gray's-inn-road, W.C.

Electric Specialities Makers.

F.—Spécialités électriques (Fab. de).
G.—Electrische Specialitäten.

GARDEN & GAYE (late Ariston Oil Co.), 15, Kirby-st., Hatton-garden, E.C. Specialities—oils for dynamo and gas engines.
Jennings, Geo,, Palace Wharf, Stangate, S.E.
Schweitzer & Lawrie, 130, Queen Victoria-st, E.C.
Terry, Chas., 114, Lambeth-road, S.E. Electric light for balls, fêtes, &c.

Electrical Instrument Makers.

F.—Appareils électriques.
G.—Electrische Instrumente.

Hearington, A. H., 374, Euston-road, N.W.
Morgan Crucible Company (The Patent Plumbago Crucible Co.), Battersea Works, S.W.
PATRICK & SON, 529, King's-road, Chelsea, S.W.
PULVERMACHER, I. L. & CO., 194, Regent-st., W.
Sarney, T. S. & Alprovidge, J. M., 6, York-st., St. James'-square, S.W.
Strode & Co., 48, Osnaburgh-st.; 67, St. Paul's Churchyard, and 32, Cockspur-st., E.C.

Electricians.

F.—Electriciens.
G.—Electricitätskundige.

Cuttress, T. & S. W., New Briggate, Leeds.
LEWIS, G. C., & CO., 1, Lowndes-terrace Knightsbridge, S.W.
PATRICK & SON, 529, King's-road, Chelsea, S.W.

Digitized by Google

Electro-Motor Manufacturers.

F.—Electro-moteurs (Fab. d').
G.—Electrische Motors.

PATRICK & SON, 529, King's-road, Chelsea, S.W.
Willsher & Co., 2, Pancras-lane, Queen Victoria-st., E.C.

Electroliers Manufacturers.

F.—Electroliers (Fab. d')
G.—Candalaber für electrische Lampen.

Barclay & Son, 138, Regent-st., W.
D'HUMY, P. R. F., 21, Litchfield-st., Soho, W.; represented by Marsh & R. J. Smith, 18, New Bridge-st., E.C. *See index to advertisers.*
VERITY, B., & SONS, King-street, Covent-garden, W.C. Designers and manufacturers of electroliers, &c., patentees of the electric cup and ball joint, only Prize Medal for electroliers at the Crystal Palace Electrical Exhibition.

Engine Makers—Steam.

F.—Machines à Vapeur (Fab. de).
G.—Dampf-Maschinen.

Shanks, A. & Son, 101, Leadenhall-st., E.C.
Willsher & Co., 2, Pancras-lane, Queen Victoria-st., E.C.

Engineers—Consulting.

F.—Ingénieurs—Consultants.
G.—Ingenieure—Consultirende.

Blackburn, Edwin, 91, Church road, Higher Tranmere, Birkenhead.
Bowman, E., Buller's green, Morpeth.

Engineers—Electric Light.

F.—Ingénieurs—Eclairage électrique.
G.—Ingenieure für electrische Beleuchtung.

D'HUMY, P. R. F., 21, Litchfield-st. Soho, W. Represented by Marsh and R. J. Smith, 18, New Bridge-st., E.C. *See index to advertisers.*

Engineers—Electrical.

F.—Ingénieurs—Electriciens.
G.—Ingenieure der Electricität

PATRICK & SON, 529, King's-road, Chelsea, S.W.
TASKER, SONS & CO., New Station-road, Sheffield.

Engineers—Mechanical.

F.—Ingénieurs—Mécaniciens.
G.—Ingenieure—Maschinenbau

Signal Engineering Co., 181, High Holborn, W.C.

Engineers' Draughtsmen.

F.—Dessinateurs pour l'Ingénieurs.
G.—Zeichner für Ingenieure.

MESSER & THORPE, Quality Court, Chancery Lane, E.C.

Frictional Machine Manufacturers.

F.—
G.—

Darlington, J. 1, Coleman-st.-buildings, Moorgate-st. E.C.
Griffin, John J. & Sons, 22, Garrick-st., Covent Garden, W.C.

Gas Fitters.

F.—Gaz—Monteurs.
G.—Gas-Monteure.

VERITY, B. & SONS, King-st., Covent Garden, W.C.

Glass Battery Cells Manufacturers.

F.—Cellules-verres.
G.—Glaskrüge für electrische Batterien.

Houghton, Geo. & Son, 89, High Holborn, W.C.

Glass Blowers.

F.—Verre (Souffleurs de).
G.—Glasbläser.

Arrighi, L., 36, Brooke-st., Holborn, E.C. Manufacturer of Incandescent Lamps and Sprangel Pumps thereof.

Glass Globe Makers.

F.—Verre (Fab. de globes).
G.—Glaskugeln für electrische Lampen.

D'HUMY, P. R. F., 21, Litchfield-st. Soho, W. Represented by Marsh & R. J. Smith, 18, New Bridge st., E.C. *See index to advertisers.*
HOUGHTON, GEORGE, & SON, 89, High Holborn, W.C.

Institutes.

F.—Instituts.
G.—Institute.

THE INTERNATIONAL INVENTORS INSTITUTE, Dashwood House, New Broad-street, E.C.

Lamp, Lustre, &c., Makers.

F.—Lampe, Lustres etc. (Fab. de).
G.—Lampen, Kronleuchter etc.

VERITY, B. & SONS, King-st., Covent Garden, W.C.

Digitized by Google

Lightning Conductor Manufacturers.

F.—Paratonnerres (Fab. de cable pour).
G.—Blitzableiter-Fabrikanten.

MARKHAM, THOS. T., 102, Fetter-lane, E.C.

Magnetic, Curative Appliance Manfs.

F.—Appareils médicaux (Fab. d').
G.—Magnetische Heilapparate.

PULVERMACHER, I. L., & CO., 194, Regent-street, W.

Manufacturers—Iron.

F.—Fer (Fab. de).
G.—Eisen—Fabr.

SMITH, G. (agent for Trowell Iron Co.) 19, Walbrook, E.C.

Manufacturing Electricians.

F.—Machines électriques (Fab. de).
G.—Fabrikanten von electrischen Apparaten.

Cuttriss, T. & S. W., New Briggate, Leeds.

Medical Battery Manufacturers.

F.—Piles médicales (Fab. de).
G.—Galvanisirmaschinen.

PULVERMACHER, I. L., & CO., 194, Regent-street, W.

Merchants—Mica.

F.—Marchands—Mica.
G.—Glimmer-Händler.

Johnson, Charles, 87, New Oxford-st., W.C.
TAYLOR & CO., 90, Hatton-garden, E.C.

Oil Merchants.

F.—Huiles (Marchands d').
G.—Oel-Händler.

GARDEN & GAYE (late Ariston Oil Co.), 15, Kirby-st., Hatton-garden. Specialities—oils for gas enginos, dynamo machines, &c.

Permanent Way for Electric Wires.

F.—
G.—

Reddall, Wm., 10, South-st., Finsbury, E.C. Tho patent Box Street Curb, for the conveyance of electric wires through the streets of cities and towns, and elsewhere.

Railway Signal Manufacturers.

F.—Signaux de Chemins de fer (Fab. de).
G.—Signale für Eisenbahnen.

British and Irish Telephone and Electric Works Co., Limited, 20, Regent-st., Waterloo-place, S.W. Electric Railway Signals.
Sullivan, E. A., 20, Mawbey-road, Old Kent-road, S.E.
Sykes, Wm. Robert, 84, Kirkwood-road, Nunhead, S.E.

Steam Engine Boiler Makers.

F.—Chaudières à vapeur (Fab. de).
G.—Dampfkessel—Fabr.

Cleveland Bridge & Engineering Co., Limited, Bank-top, Darlington.
Gimson & Co., Vulcan-st. Works, Leicester.
HINDLEY, E. S., Bourton, Dorset. London office, 52, Queen Victoria-st., E.C.
Hopkinson & Cope, Farringdon-road, E.C.
Tannett, Walker & Co., Leeds.
Turner, Wm., Adelphi-st., Salford, Manchester.

Steam Packing Makers.

F.—Garnitures à vapeur (Fab. de).
G.—Liederungsdeckel-Fabrikanten.

INDESTRUCTIBLE PACKING CO., East India Dock-road, E. Patent metal packing.

Telegraph Engineers.

F.—Télégraphes—Ingénieurs.
G.—Telegraphenbau-Ingenieure.

VARLEY, O. & F. H., Mildmay Park-wks. N.

Telegraph Insulator Manufacturers.

F.—Isoloirs (Fab. de).
G.—Isolator-Fabrikanten.

Jobson Bros., Phœnix Works, Dudley.

Telegraph Paper Manufacturers.

F.—Papier télégraphique (Fab. de).
G.—Papierfabriken für Telegraphie.

CHALFONT ENDLESS TELEGRAPHIC PAPER COMPANY, 114 & 115, Great Saffron-hill, E.C.

Trade Mark Registration & Patent Agents.

F.—Brevets et Marques de fabrique (Agents de).
G.—Agenten zum Registriren der Patente etc.

Gray, John Wm., C.E., 27, Southampton-buildings, Chancery-lane, W.C.

Digitized by Google

Turbine & Water Wheel Makers.

F.—Turbines et Roues hydrauliques.
G.—Turbinen und Wasserräder.

NELL, FREDERICK, 28, Mark-lane, E.C.

Turners—Wood.

F.—Tourneurs à bois.
G.—Holzdrechsler.

GOODWIN, H. G., 42, Kirby-street, Hatton-garden, E.C.

Valve Makers.

F.—Clapets (Fab. de).
G.—Ventil-Fabrikanten.

Hulme & Lund, Manchester.
Turner, W., Adelphi-st., Salford, Manchester.

Wire Coverers—Silk.

F.—Fils recouverts (Fab. de).
G.—Fabriken zum Umspinnen des Drahtes—Seide.

WALTERS, D. & SONS, 44 & 45, Newgate-st., E.C.

Wire Manufacturers—Brass & Copper.

F.—Fils bronze et cuivre.
G.—Draht—Kupfer und Messing.

Newton, Keates & Co., 28, King-st., Liverpool.

Wire Manufacturers—Galvanized Iron.

F.—Fils Fab.—Fer galvanisé.
G.—Galvanischer Eisendraht.

Horton, J. & Co. Hammerton-st., Leeds-road, Bradford, Yorks.

Electrical Publications.

F.—Publications électriques.
G.—Zeitschriften über Electricität.

A treatise on the Means and Apparatus employed in the transmission of electrical energy and its conversion into motive power. For the use of engineers and others. By J. W. URQUHART, electrician, author of "Electro-plating: A Practical Handbook," "Electric Light," &c. Crown 8vo, cloth, pp. xii. & 178, illustrated, price 7s. 6d.

Practical Information for Telephonists. By T. D. LOCKWOOD, electrician, American Bell Telephone Co. 16mo, cloth, price 5s.

Instructions for testing telegraph lines, and the technical arrangements in offices. Written on behalf of the Government of India, under the orders of the director-general of telegraphs in India. By LOUIS SCHWENDLER. Vol. I., demy 8vo, pp. 248, cloth. 1878. 12s. Vol. II., demy 8vo, pp. xi. and 268, cloth. 1880. 9s.

Digitized by Google

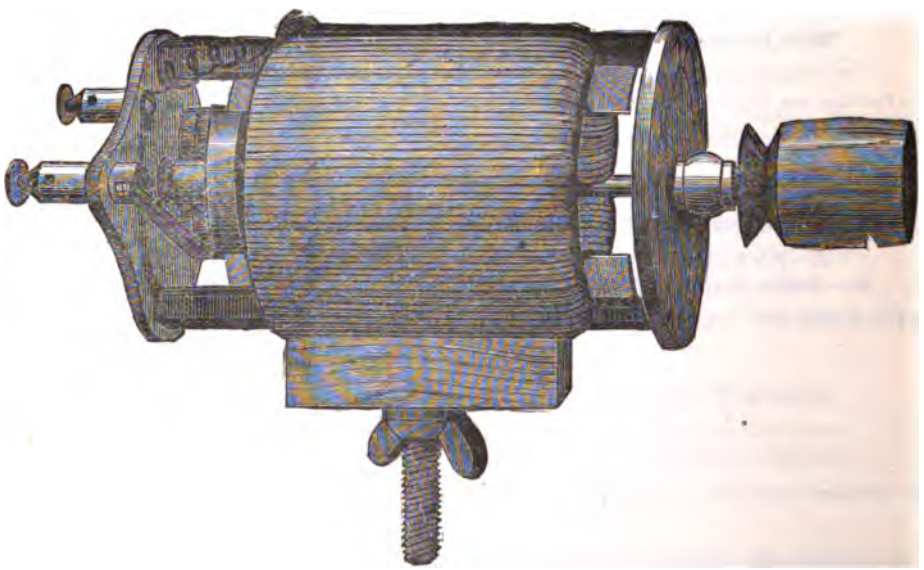
GRISCOM'S

DOUBLE INDUCTION ELECTRO-MOTORS AND "AUTOMATIC" BATTERIES.

Complete Apparatus for driving any Sewing Machine, Dental Engine, &c. ... ... £6 5s.

Packed and Delivered in London.

One-Man-Power Motor & Battery for Organ Blowing, Lathes, 2 heavy Leather Sewing Machines, £16.



GRISCOM A, OR SEWING MACHINE MOTOR, ABOUT REAL SIZE.

OTHER SIZES UP TO 10-HORSE POWER MADE TO ORDER.

ILLUSTRATED PRICE LIST, TESTIMONIALS, &c., ON APPLICATION.

THE

ELECTRO-DYNAMIC COMPANY of PHILADELPHIA,

C. R. HEAP - - - General European Agent,

2 SCOTT'S YARD, BUSH LANE, CANNON STREET, LONDON, E.C

Digitized by Google

REMARKS ON THE PAST YEAR.

THE year 1882 has been fruitful in events interesting to the electrical community and the world at large.

The year began with the Crystal Palace Electrical Exhibition, which, after many delays, finally opened at the beginning of January, and proved a continuous success during the six months it lasted.

As a general Electrical Exhibition, it was certainly less complete and interesting than its predecessor, the Paris Electrical Exhibition; but, as a display of Electric Lighting, it was all that could be desired, and the Crystal Palace, with its magnificent courts, plantations, etc., offered every night a magic spectacle not likely to be forgotten by those who witnessed it.

Crowds of people flocked to visit this Exhibition, and especially on the occasion of public holidays, when the crowd was so dense as to render it impossible to circulate.

Numerous deputations and delegations succeeded each other in their official errands, gas managers, railway officials, theatrical managers, corporations, etc.; learned societies appointed meetings there; interesting courses of lectures were given by authorized speakers. Altogether the attractions were of the most extensive scope.

Some of the exhibits were of quite a munificent kind, and as examples of Firms and Companies who must have gone into lavish expenditure in order to have a display worthy of the occasion, may be cited the Edison, the British Electric Light and the Brush Companies.

From a financial point of view, the Crystal Palace Exhibition proved no less successful, the profits arising out of it reaching the very imposing amount of £15,637, and this, notwithstanding the Crystal Palace Company had to discharge an increase of £2,000 in the fire insurance, such were the decisions of the Insurance Companies, who very naturally asked for a higher premium corresponding to the increase of risks consequent upon the addition of so many engines, machines, and lamps of every description and system.

The Exhibition was visited on the 17th March by Mr. Gladstone, and on the 25th by the Prince and Princess of Wales.

The success of the Paris and Crystal Palace Electrical Exhibitions could not but be contagious, and, besides a great many local electrical exhibitions, the year 1882 will have seen an International Electrical Exhibition at Munich, another Electrical Exhibition at the Crystal Palace, one at the Royal Aquarium, Westminster, and one at Manchester.

The Crystal Palace Exhibition is not this time purely electrical, but is termed Electric and Gas Exhibition. It was opened the 13th December, and will prove more of a Gas than an Electric Exhibition, as the electrical exhibits are comparatively scarce.

The opening of the Westminster Aquarium Exhibition has been repeatedly postponed, owing probably to the want of zeal on the part of exhibitors; and the Manchester one is in course of preparation.

Digitized by Google

The Paris Electrical Exhibition proved a success in every respect; the financial part of it resulting in a nett profit of about £16,000, which sum is going to be devoted to the creation of a Central Laboratory of Electricity. Technically, some very elaborate experiments were carried out by the jury, and it is very desirable that these should be published. Two very exhaustive reports have however been placed before the interested public, that of Professors W. Crookes and G. F. Barker, "on the Incandescent Lamps exhibited at the International Exposition of Electricity of Paris, 1881," and that of Messrs. Allard, Joubert, T. Le Blanc, Potier, and H. Tresca, on "Experiments made at the Paris Electrical Exhibition on Electric Lights and Magneto and "Dynamo Electric Machines."

The French Government has also shown its appreciation of the merits of a great many French and Foreign electricians, *savants*, and contributors, by conferring upon them the Knighthood of the Legion of Honour.

An interesting feature of the Munich Exhibition proved to be M. Marcel Deprez's experiments of transmission of electrical energy at great distance.

M. Marcel Deprez, with the concurrence of Mr. Fort, manager of the Miesbach Coal Mine, and of Mr. Behringer, the Inspector of Telegraphs, and who placed at his disposal the motive power, and two wires of the telegraphic system, was able to transmit from Miesbach to Munich through two ordinary telegraph wires, which had been subjected to no preparation, 30 per cent. of the power expended on a Gramme machine worked by a steam engine at Miesbach, the electrical energy so transmitted being rendered apparent in causing the secondary machine to work a centrifugal pump raising the water 10 feet high. The distance between Miesbach and Munich is 57 kilomètres or nearly 32 miles, the total length of the circuit being therefore for the two wires 114 kilomètres or nearly 64 miles.

A few more instances of transmission at a distance of the electrical energy have taken place during the year, but they are comparatively few and far between. Three lines of electric tramways have been started, one by Doctor W. Siemens in Prussia, between Berlin and Lichterfelde, and this has worked so satisfactorily, that we believe it has been somewhat considerably extended since; one at Giant's Causeway, Portrush, Ireland, by Dr. C. W. Siemens, and connecting that town to Bush Mills, a distance of about six miles; and the third one by T. A. Edison at Menlo Park.

A miniature electric railway may be seen in the grounds of the Crystal Palace running daily.

A Bill was also lodged in Parliament for constructing an Electric Railway under the River Thames, connecting Waterloo and Charing Cross Stations; and has now passed into law.

With a few other instances of transmission of electrical energy at a distance, this represents the total of the efforts made in that direction, and is certainly very little considering the magnitude of what remains to be done. This branch of Electricity is waiting its development no less than the interesting branch known as Electro-Metallurgy. It is a curious fact that the first dynamos were intended for electro-chemistry—*i.e.*, plating and depositing uses and that these have entirely remained in abeyance through the more captivating industry of Electric Lighting.

Electric Lighting will certainly become a very large industry, but will we believe be greatly surpassed by the industries of Transmission of Electrical Power and Electro-Metallurgy and depositing.

Digitized by Google

The light is the great sensation of the moment, and this particular branch of the electrical industries may be said to have stirred during the whole year the whole community. The exhibitions attracted crowds of people who came to be educated to the new illuminant; a Select Committee of the House of Commons was appointed to investigate the question and report with a view of enabling the Government to deal with the numerous applications of the Electric Lighting Companies for Parliamentary powers. The said Committee had, between the 25th of April and the 12th of June, fourteen sittings, at eight of which witnesses were called to give evidence. The proceedings were of the greatest interest, witnesses *pro* and *con* having been called and the result of the inquiry and of the Report of the Select Committee was the "Electric Lighting Act, 1882," called "an Act to facilitate and regulate the supply of Electricity for Lighting and other purposes in Great Britain and Ireland."—18th August, 1882.

The Act comprises 23 Sections, and is completed by a series of "rules made by the Board of Trade with respect to applications for Licenses for Provincial Orders, etc.," containing 14 rules.

The Lighting by Electricity has made great progress during the year, Installations having been carried out in a large number of public and private places.

The contracts for lighting those portions of the City Streets mentioned in our last issue expired the 1st of April, and were only renewed with the Brush Company who obtained a slight increase of price; Messrs. Siemens claimed too great an increase, and the City authorities preferred to revert to gas lighting for that portion which had been lighted electrically for one year by the firm of Messrs. Siemens Brothers. As regards Queen Victoria Street, etc., the contractors, the Electric Light and Power Generator Company (now the Maxim-Weston Company), being then in a position to carry out the lighting of the district allotted to them, began lighting it and have continued it ever since. They use the Weston arc lamp and it gives out a fairly satisfactory and very brilliant light.

The Engineer of the City Sewers Commissioners, Lt.-Colonel William Haywood has presented to his principals an interesting report on the lighting of the City during the period April 1881-82, and the city having contemplated a considerable extension of the Electric Lighting, and invited the Firms and Contractors to tender for the lighting of certain districts; Lt.-Colonel Haywood was instructed to prepare a report showing the results of the inquiry, and this he did in a very clear and able manner; the result was to maintain the *status quo*; the estimates of the various applicants having proved higher than the Corporation was prepared to pay for experimental purposes.

The Thames Embankment has continued to be lighted by means of the Jablochkoff candle as well as Waterloo Bridge, and even if the candles do not give as pure and steady a light as one might desire, it must be acknowledged that they are doing good service on a very simple system.

The Holborn Viaduct is lighted throughout by means of Edison's Incandescent Lamps, the Edison Company having established a distributing station in one of the houses of the Viaduct. The plant erected at this station is sufficient for 1200 lamps, and the light is distributed to a number of shops on both sides of the thoroughfare, also to Dr. Parker's Temple, the Railway Terminus, and Spiers and Pond's Hotel, which is lighted throughout by it.

Pentonville Road is lighted by 80 Maxim Incandescent Lamps.

Digitized by Google

The new Law Courts which were opened by the Queen on the 4th December, will be lighted throughout by means of the Swan Incandescent and Crompton Arc Lamps.

All the ocean going ships are being fitted up with the Incandescent light; numerous workshops and factories are adopting it in the manufacturing districts. Some small centres of distribution have already been established in London, Liverpool, and other towns, and from these centres the light is distributed to customers who are not obliged therefore to keep plant and staff on their premises. Foreign and distant countries are buying electric plant very largely. All the firms of engineers appear to be as busy as possible turning out steam engines for electric lighting purposes.

The number of places lighted by electricity grows to such importance every day that it would be quite impossible to name even a portion of them.

Altogether, it may be said, that the electric lighting branch is a most thriving one, and that the progress which has been made in all the apparatus connected with it, is considerable and very satisfactory.

The electrical industry is so varied, and progressing at such a pace, that it could not escape the attention of the financial, and, we may say, the speculative community.

The electric mania has been raging fiercely, and the light being the branch most prominently forward, has had the lion's share. For months together one could not open his newspaper in the morning without finding the announcement of at least one new Electric Company of some kind; sometimes two or three would come out the same day, and on one occasion as many as four new ones were advertised in the same paper.

Inventors, ripe or not, came forward, Electricians *pro tem.* rushed to the Patent Office to create a property which might be negotiable, and some succeeded in vending their goods in the verdant state, such was the craze for something unknown and wonderful. It seemed as if the inventions were mere pretexts for enabling speculation to have free scope, and in fact it was nothing else than unhealthy financial jobbery.

A few of the Companies so-formed, were of course genuine, but the majority of them had no reason to be, and cannot possibly last. In all likelihood some people have or will have to pay dearly for their blindness, the electro-financial gentlemen having by this time prudently retired with their earnings. The number of electric lighting Companies of various kinds launched during the year 1882, is 42, and the Capital invested is not less than £15,428,000. The light being played out, speculative excitement is now obtained with machines, the supposed merits of which are advertised in a sensational manner.

A considerable number of dynamo-machines have been brought out during the year. The more recent are M. de Meriten's cheap magneto and dynamo machine, the Chertemps, the Ferranti, and the Gordon—the last-named one being of colossal dimensions, and weighing eighteen tons: it is intended to drive some 10,000 incandescent lights.

The electric light has also had its victims, both in persons and property. At the beginning of the year a man was killed at Hatfield, the residence of the Marquis of Salisbury, when accidentally handling some bare wires through which the current of a Brush machine was passing at the time.

In March, a workman was killed at the Cleveland, Ohio, rolling mill, by a shock from a Brush machine.

In July, two men met with their deaths in Paris in going over a wall on which some bare wires conveying a powerful current were laid, and later on a man was also killed by a shock at Trieste, in the building of the Exhibition being held in that town.

Digitized by Google

Damage to property also occurred through the agency of the light. The occurrences aroused the attention of the Fire Insurance Companies, and the result was a set of rules, drawn by one of the leading Companies, the "Phœnix," and which are now adopted by all the other Insurance Companies.

In this document are set forth the conditions under which the leading wires should be fixed in electric light installations, and there are not less than nineteen rules, which we give in full in the Appendix on page 343, together with a series of recommendations of Mr. Heaphy, C.E., the consulting engineer of the "Phœnix" Insurance Company.

If we add to these the rules drawn up by the Committee of the Society of Telegraph Engineers and of Electricians, and "the Fire Underwriters' Regulation respecting the use of the Electric Light in New York" we shall have given the complete matter upon the subject of Electric lighting.

The lighting of all the places mentioned is effected direct from dynamo-machines.

In a great many other instances dynamos are only used indirectly, that is to say, for the purpose of charging accumulators, the light itself being obtained from the accumulators themselves; the dynamo being either at work or at a standstill during the period of lighting. In some other instances the old process of obtaining the light direct from batteries, that is, without motive power, dynamo or accumulator, has been reverted to. The first instance in illustration of this method of lighting is by means of 265 Swan incandescent lamps at the Théâtres des Variétés, Paris, the motive power being a gas engine of 12-horse power, which, during 20 hours per day, charges by means of a dynamo a series of Faure accumulators; also in the lighting of the dining saloon of the Grand Hotel in London by means of Edison incandescent lamps maintained by a number of Faure accumulators. These are charged during the day.

The second instance is an illustration of the lighting by arc and incandescence of the large banking establishment known as the "Comptoir d'Escompte" in Paris, where 60 batteries of 48 cells each, or an aggregate number of 2,880 cells of the Grenet and Jarviant systems, are used for maintaining the lights.

The French Government has voted a sum of £320,000 for providing 42 lighthouses with electric light plant.

The telephone industry has also received a very great impetus during the year; numerous and influential companies having been formed with a view of developing telephonic systems both in this country and abroad. A large number of local companies have been and are almost daily formed for the purpose of establishing telephonic intercommunication within local towns, and neighbouring towns are also becoming telephonically connected, so that within a comparatively short time we may expect to see the world covered with telephonic wires, as it is now partially encircled with telegraph wires. This is a pleasant prospect for the wire manufacturing industry.

The question of how to deal with telephonic wires is also engaging the attention of the Legislature as well as of municipal and parochial authorities. To anyone who looks upward in certain parts of London or Manchester, it must be evident that, sooner or later, some other means of carrying wires must be resorted to, as they are undoubtedly a great danger to public security.

Great progress has been also accomplished in the manufacture of wires. The phosphor-bronze wire has proved very valuable for crossing long spans, and also as regards its comparative lightness; the silicious bronze wire, a recent development

Digitized by Google

of the phosphor-bronze wire and the invention of M. L. Weiller of La Rochelle, France, also seems to promise much. This wire was carefully tested at the Munich Exhibition and found to have the properties of ordinary phosphor-bronze wire greatly developed; it was found to have a much greater tensile strength and a much greater conductivity, and its general adoption seems to be merely a question of time.

A great many improvements have also taken place in the apparatus connected with the telephonic industry; new systems have been devised and brought up—some very valuable—others already forgotten. Amongst the former may be cited, Dunaud's speaking condenser, and also Van Rysselberghe's telephonic system for suppressing the inductive effects of telegraphic currents on telephonic circuits without employing double wires, and the simultaneous transmission of a telegraphic dispatch in Morse-signals and a telephonic message by one and the same wire.

Great distances have also been covered in Telephony, the "*New York Review of the Telegraph and Telephone*" of the 1st December, records a very successful trial of an improved Telephone made quite recently in Boston, over a line 563 miles in length, and at which conversation was carried on for three hours, the articulation being powerful enough to be heard with the receiving Telephone six inches from the Ear.

Telephony has been conspicious during the year 1882 by the number of Lawsuits to which it has given rise.

The first and most important of these was the action of the United Telephone Company, Limited, *v.* Alexander Maclean, of Edinburgh, which was tried in the first division of the High Court of Justice in that town, before Lord McLaren, and in which it was sought, on behalf of Th. A. Edison, for suspension and interdiction against the respondent from infringing various Letters Patent. This suit began on the 26th Oct., and terminated early in 1882, after a great many sittings; and amongst the Scientific witnesses called to give evidence, were, Sir William Thomson, Professor Blyth, Professor Ferguson, Mr. C. W. Cook, Mr. F. King, &c. The suit was decided in favour of the Plaintiffs, and the Defendant lodged an appeal against judgment on the 11th February.

Then came the Lawsuit of the United Telephone Company against the following parties:

F. Pope Cox (and a counter action of F. Pope Cox, against the U. T. C.)

V. Theiler & Son, 16th July, 1882, in the High Court of Justice, Chancery Division, before Mr. Justice Fry, (motion for an interim injunction to restrain the defendant from infringing the "Edison Transmitter.") The respondents submitted to an injunction.

Harrison, Cox, Walker & Co., in the High Court of Justice, Chancery Division, before Mr. Justice Fry. This case was greatly similar to that of the United Telephone Company, Limited, *v.* Maclean, decided by Lord McLaren in Scotland, and above mentioned. In it, as in the former, an array of scientific and legal witnesses of well known repute gave evidence. This action was concluded on the 19th May; Mr. Justice Fry's decision being expressed in a speech which occupied nine columns in small print of the "*Electrical Review*," and resulting in an injunction on one point and the disclaimer of Edison's Phonograph.

J. Orme & Co.: result, injunction granted.

Digitized by Google

Orme & Co., *v.* Butler, Haines, on 17th November, before Mr. Justice Fry, to restrain the infringement of Patents of plaintiff's Co. for Telephonic Instruments. Injunction granted.

In our last issue we mentioned that France was following Germany in the path of replacing their overland telegraph lines by underground ones; this is corroborated by the fact of the underground line between Paris and Marseilles having been undertaken and nearly completed during the year.

The submarine system of telegraphy has also, during the year, received some valuable additions, amongst which we may cite:—

The completion of the Jay Gould Atlantic Cable, 3,000 miles long, by the firm of Messrs. Siemens Brothers. (This cable was laid by the steamer "Faraday" in four voyages.)

The Central and South American Telegraph Co., manufactured by the India Rubber Gutta, Percha and Telegraph Works Company, Limited, of Silvertown, and which telegraphically connects Vera Cruz to Lima, passing through San José, Realejo, Greytown, the Panama Isthmus, Buonaventura, Santa Elena, Payta (3,170 knots). A line between Vera Cruz and Brownsville, and one between Lima and Valparaiso already existing, this latter town is, therefore, in direct telegraphic communication with the United States of America and consequently with the rest of the world.

The new Red Sea Cable (200 miles), manufactured and laid by the firm of Siemens Brothers, and connecting Yeddah (Turkey) to Souakin (Egypt).

The Northern Coast of Africa (260 miles) Cable, manufactured for the French Government and laid by the firm of India Rubber, Gutta Percha and Telegraph Works Company, &c.

We may also mention that a joint arrangement as to the working of lines and distribution of profits took place between the following Atlantic Companies, each receiving the following share of profits:—

Direct United States Company, Limited	18,375	per cent.
Anglo-American Telegraph Company, Limited ..	55,125	,,
Compagnie Française du Télégraphe de Paris à New York	14,000	,,
American Telegraph and Cable Company	12,500	,,
	100,000	

The chief articles agreed to are the following:—

The breakage of or damage done to a submarine cable, if caused intentionally or by culpable negligence, having the effect of stopping or clogging, altogether or partially, telegraphic communications, will be punishable, and costs and damages will be recoverable by civil action besides. Any owner of a cable who, in laying or repairing it, shall cause breakage or damage to another cable, must support the expenses rendered necessary by that breakage or damage. Vessels occupied in laying or repairing submarine cables must observe the rules or signals which are or shall be adopted by common consent of the high contracting Powers. When a vessel occupied in the repairing of a cable has made the said signals, other vessels which see or are in a position to see these signals are to retire from the spot or else to keep themselves at a distance of a naval mile from the scene of operations for fear of hindering them; and fishermen's nets are to be kept at the same distance. The ship engaged in repairing the telegraph is to be as speedy as possible in its operations, and any vessel holding off in answer to signals is to be granted a delay of twenty-four hours at the outside. From a buoy indicating either the position, derangement or repair of a submarine cable, all boats and fishermen's nets must keep away at least a quarter of a nautical mile. In case the owner of a boat can prove that an anchor or a fishing net has been lost by him in his endeavour to avoid injury to a cable, the owner of the cable is to indemnify him;

Digitized by Google

but in order to claim this indemnity the captain of the boat must address a *procès verbal*, supported by witnesses, to the proper authorities within twenty-four hours after his arrival in port. The authorities will give immediate notice to the consul of the nation to which the owner of the cable belongs. The competent tribunals to recognise infractions of this Convention are those of the country to which the offending vessel belongs; and prosecution for offences shall be conducted by the State or in its name. All evidence admissible in the ordinary tribunals of the country shall be admissible in these cases; and *procès verbaux* may be drawn up by officers commanding ships of war or ships specially commissioned for the purpose, whatever the nationality of the offending vessel, such *procès verbal* in each case being drawn up according to the usual forms, and in the language of the nation of the officer who draws it up. In any case of contravention of the regulations of the Convention, judgment is to be given as summarily as the laws and regulations allow.

During the year also some interesting papers were read before scientific societies and otherwise, and amongst others we may cite the following:—

"Attraction and repulsion due to sonorous vibrations, and a comparison of the phenomena with those of magnetism," by Mr. Stroh, before the Society of Telegraph Engineers and of Electricians.

"Recent Wonders of Electricity," by W. H. Preece, F.R.S., before the Society of Arts. (28th Dec., 1881.)

"On Electric Lighting for Ships and Mines," by Andrew Jamieson, C.E., before the Institute of Engineers and Shipbuilders in Scotland. (20th December, 1881.)

"Electric Lighting by Incandescence," by J. A. Fahie, before the Royal Society, Dublin. (17th January, 1882.)

"Applicability of Electricity," by L. J. Crossley, of Halifax, at the Victoria Hall, Saltaire. (17th January, 1882.)

The inaugural address delivered to the Society of Telegraph Engineers and of Electricians, by its new President, Lt.-Col. Webber, R.E. (19th January, 1882.)

"A cheap form of Voltaic Battery," by A. R. Bennett, M.S.T.E., before the Philosophical Society of Glasgow. (1st February, 1882.)

"Storage of Power," by Prof. W. E. Ayrton, F.R.S., before the London Institution. (2nd March, 1882.)

"Electric Lighting by Incandescence," by J. W. Swan, before the Royal Institution. (10th March, 1882.)

"Electric Railways," by Prof. W. E. Ayrton, F.R.S., before the Royal Institution of Great Britain. (24th March, 1882.)

"On the action of the Microphone," by Prof. Blyth, before the Royal Society of Edinburgh. (17th April, 1882.)

The inaugural address of Doctor C. W. Siemens at the opening of the annual meeting of the British Association in Southampton, and also the papers read during the said meeting by Lord Rayleigh, Sir William Thomson, Professors H. G. H. Shaw, G. Forbes, Messrs. W. H. Preece, F. S. Sprague, R. Sabine, Dr. Fleming, &c.

The interesting papers read during the meeting of the "Association Française pour l'avancement des Sciences," as held at La Rochelle, from the 24th to the 31st August, by Messrs. Debrun, Marcel Deprez, &c.

"Measuring Instruments used in Electric Lighting and Transmission of Power," by Prof. W. E. Ayrton, before the Society of Telegraphic Engineers.

"Electric Clocks and Time Telegraphs," by L. H. Spellier, before the Franklyn Institute. (17th May, 1882.)

Digitized by Google

"The Electrical Experiment to determine the location of the bullet in the body of General Garfield, and upon a successful form of induction balance for the detection of metallic masses embedded in the human body," by Prof. Graham Bell, before the American Association for the Advancement of Science.

Also the varied lectures delivered by the exhibitors and others at and during the Crystal Palace Exhibition.

Amongst the new Electrical Books published during the year are the "Report of the Lightning Rod Conference." E. & F. N. Spon, 16, Charing Cross, London.

"Usual Information on Electric Lighting," by K. Hedges, C.E. 3rd edition. E. & F. N. Spon, Charing Cross, London.

"Elementary Lessons in Electricity," by Sylvanus P. Thompson. London: Macmillan & Co.

"The action of Lightning, and the means of defending Life and Property from its effects," by Arthur Parnell. Crosby, Lockwood & Co., London.

"Information about Lightning Conductors," by the Academy of Sciences, translated by R. Anderson. E. & F. N. Spon, Charing Cross.

"Practical Information for Telephonists," by T. D. Lockwood. W. J. Johnson, 9, Murray Street, New York.

"Electric Illumination." Vol. I. By James Dredge. "Engineering," 35 and 36. Bedford Street, Strand, W. C. 30s.

"Report from the Select Committee on Electric Lighting Bill." Spottiswoode, London. 3s.

"The Electrical Review," a Weekly Electrical Paper, the continuation of the "Telegraphic Journal." Published by Mr. H. Alabaster, 22, Paternoster Row. (This is the leading paper on electrical matters in England.)

If we add that, besides the four or five institutions at which electricity is already taught in a special manner (and the most prominent of which is the City and Guilds London Institute), another electrical school (the Hammond College of Electrical Engineering) has been added to the number, we shall have briefly reviewed in the short space which we can devote to this chapter, the principal features of the year which has now ended.

Before closing, we mention those who have departed during the year.

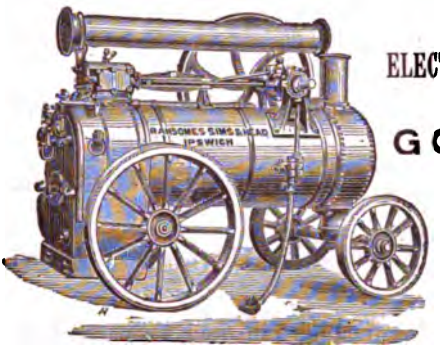
The list opens with the death of Carl Louis Schwendler, which took place at Sheoneberg, near Berlin, the 6th January, 1882.

Next comes Charles Hockin, C.E., who died on the 26th April, 1882; Antoine Bréguet, who died at Paris, the 8th July, 1882; J. C. Laws, who died at Brighton, the 26th October, 1882; W. T. Henley, who died the 15th December, 1882.

N.B.—For new Rules and Regulations adopted by the leading British Insurance Companies and the New York Fire Underwriters, with regard to Fire Risks and the Electric Light, see the Appendix on page 343; also statistics as to the extent of the Telegraph Lines of the world, and a list of the latest British and American Patents bearing on Electricity.

Digitized by Google

RANSOMES, HEAD & JEFFERIES.

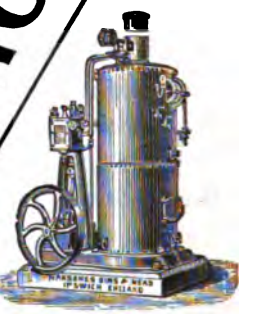


PORTABLE STEAM ENGINE.

INTERNATIONAL
ELECTRIC EXHIBITION, LONDON, 1882.

GOLD MEDAL.

ELECTRIC LIGHT ENGINES

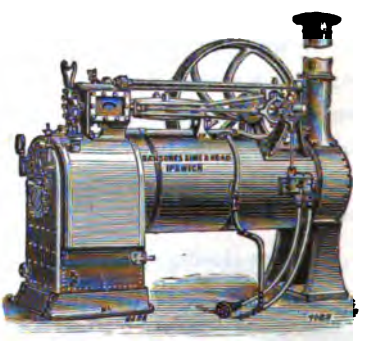


VERTICAL ENGINE.

Ransomes, Head & Jefferies have supplied their Engines to:—

The Metropolitan Board of Works, London.
Edison's Foreign Electric Light Company.
United States Electric Lighting Company.
The Maxim-Weston Electric Company.
Messrs. L. Clark, Muirhead & Company.
The Gülcher Electric Light Company.
Messrs. R. E. Crompton & Company.
Jablochkoff Electric Light Company.
The South Kensington Museum.
Société Générale D'Electricité.
Northern Electric Light Co.
Elec. Light Engineering Co.
British Electric Light Co.
Indian Electric Light Co.
Great Eastern Railway.
Messrs. Wells & Co.
&c., &c.

Complete Catalogues and Prices Post Free on application.



SEMI-FIXED ENGINE.

RANSOMES, HEAD & JEFFERIES' Engines being fitted with a Patent Automatic Expansion Governor Gear, which ensures perfect regularity of speed, are specially adapted for all Electric Light purposes.

IPSWICH AND LONDON.

Digitized by Google

TABLES & FORMULÆ.

FORMULÆ OF THE ABSOLUTE UNITS

1.—*Fundamental Units.*

L—Length or Space = 1 centimètre.
T—Time = 1 second.
M—Mass = 1 gramme.

2.—*Derived Mechanical Units.*

(1) Velocity—$V = \frac{L}{T}$

(2) Force—$F = \frac{LM}{T^2}$

(3) Work—$W = \frac{L^2 M}{T^2}$

3.—*Derived Magnetic Units.*

Strength of the Pole of a Magnet	$m = L^{\frac{3}{2}} T^{-1} M^{\frac{1}{2}}$
Moment of a Magnet	$m\,l = L^{\frac{5}{2}} T^{-1} M^{\frac{1}{2}}$
Intensity of a Magnetic Field	$H = L^{-\frac{1}{2}} T^{-1} M^{\frac{1}{2}}$

4.—*Electro-Magnetic System of Units.*

Quantity of Electricity	$Q = L^{\frac{1}{2}} \times M^{\frac{1}{2}}$
Strength of Electric Current	$C = L^{\frac{1}{2}} T^{-1} M^{\frac{1}{2}}$
Electro-Motive Force	$E = L^{\frac{3}{2}} T^{-2} M^{\frac{1}{2}}$
Resistance of Conductor	$R = L.T^{-1}$

5.—*Electrostatic System of Units.*

Quantity of Electricity	$q = L^{\frac{3}{2}} T^{-1} M^{\frac{1}{2}} = v\,Q$
Strength of Electric Current	$c = L^{\frac{3}{2}} T^{-2} M^{\frac{1}{2}} = v\,C$
Electro-motive Force	$e = L^{\frac{1}{2}} T^{-1} M^{\frac{1}{2}} = \frac{E}{v}$
Resistance of Conductor	$r = L^{-1} T = \frac{R}{v^2}$

v = 310·740·000 mètres, per second approximatively, the ratio of the Electro-static to the Electro-magnetic Unit of Quantity.

Digitized by Google

UNIT OF FORCE is the force which would produce, in a body weighing one gramme, a velocity of one centimètre per second. Calling gravitation the natural unit of force, the absolute unit of force will be $\frac{1}{981}$th part of it, or $\frac{1}{981}$ of a gramme, acted upon by the earth's attraction, or the weight of $\frac{1}{981}$ gramme.

UNIT OF MECHANICAL EFFECT is the unit of force carried up through one centimètre, or $\frac{1}{981}$ raised one centimètre.

UNIT OF MECHANICAL PERFORMANCE is the unit of mechanical effect or work performed in the unit of time, or $\frac{1}{981}$ gramme raised one centimètre in one second.

ELECTRICAL UNITS OF MEASUREMENT.

(*British Association and Congrès International des Electriciens, Paris*, 1881.)

1.—RESISTANCE.—The Ohm is equal to 10^9 absolute electro-magnetic units, or to the resistance of a prism of pure mercury 1 square millimètre section and 1·0486 mètres long, at 0° cent. It is represented by a length of about 400 mètres of French telegraphic wire (4 millimètres). The Megohm used in expressing insulations is equal to a million Ohms, or 10^{15} absolute electro-magnetic units. The Microhm is equal to one-millionth part of an Ohm, or 10 absolute electro-magnetic units.

2.—ELECTROMOTIVE FORCE.—The Volt is equal to 10^8 absolute electro-magnetic units, or about equivalent to 0·9268 times the electro-motive force of a Daniell's element.

A Megavolt = 1,000,000 Volts.

A Microvolt = $\frac{1}{1,000,000}$ Volt.

3.—CURRENT.—The Unit of Current is equivalent to an Ampère per second, or the Current having an electro-motive force of one *Volt* and a resistance of one Ohm

4.—QUANTITY.—The Unit of Quantity, the Coulomb, is defined by the condition that an Ampère gives one Coulomb per second.

5.—CAPACITY.—The Farad is the capacity defined by the condition that a Coulomb in a Farad gives one volt.

All these units have their megas and micros (1,000,000 and $\frac{1}{1,000,000}$).

Digitized by Google

Useful Tables and Data for the assistance of Consumers of Wire,

Compiled by W. F. DENNIS, Esq.

WIRE GAUGES IN USE IN VARIOUS COUNTRIES.

GERMANY.—Formerly there was a variety of Gauges in use. For Hoop and Sheet Iron as well as Wire, the Birmingham Gauge was used, for Sheet Iron also the "Dillinger Blechlehre," which is based on millimètre sizes, viz.:—

No.	1	2	3	4	5	6	7	8	9	10	11	12	13
m/m	5.50	5.00	4.50	4.25	4.00	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.85

No.	14	15	16	17	18	19	20	21	22	23	24	25	26
m/m	1.70	1.55	1.40	1.25	1.10	1.00	0.90	0.80	0.70	0.60	0.50	0.40	0.30

The Wire Drawers in Westphalia used the "Westfaelische Stiftdrahtlehre" as well as the French Gauge ("Gauge de Paris"), and the "Bergisch or Westphalian" Gauge, which are very nearly the same, with the exception that the latter expresses the sizes of Wire by name and not by numbers. Not any of these Gauges have been in use since the beginning of 1874, when most of the Wire Drawers of the Continent adopted a *new* "*Millimètre Gauge*," given below, the numbers of which express the sizes of Wire in tenths of a millimètre. This is a great improvement, on account of its correctness and simplicity, corresponding at the same time very nearly with the B. W. G. This Millimètre Gauge is now in extensive use on the Continent.

RUSSIA.—Manufacturers use different Gauges of English, French, and German patterns.

FRANCE.—Measurements are almost universally made in that country by the scale of one-tenth of a millimètre. In some cases the Birmingham and Dilligen Gauges are used.

UNITED STATES.—The B. W. G. is mostly in use, but it has been under the consideration of a Special Committee lately as to what system of measurement could be best adopted by the country, and their recommendation was the expression of sizes in thousands of an inch, or in fractions of a millimètre.

CANADA.—Only the B. W. G. is known to mechanics.

Table, comparing the New Millimetre Gauge with various other Gauges in Use.

THE NEW MILLIMETRE WIRE GUAGE.		Size in Decimals of an inch.	Approximate Weight per 1,000 metres in Kilogrammes.	BIRMINGHAM WIRE GAUGE.		PARIS GAUGE.		WESTPHALIAN PIN WIRE GAUGE.		WESTPHALIAN GAUGE.	
No. of Millimetre Gauge.	Thickness in m/m.			No.	Thickness in m/m.	No.	Thickness in m/m.	No.	Thickness in m/m.	Denomination.	Thickness in m/m.
100	10.0	0.394	600	3/0	10.70	30	10.0	29	10.0		
94	9.4	0.370	530	2/0	9.65	29	9.40	28	9.4		
88	8.8	0.346	465	0	8.63	28	8.80	27	8.8		
82	8.2	0.323	403			27	8.20				
76	7.6	0.299	347	1	7.62	26	7.60	26	7.6	Ketten	7.8
70	7.0	0.276	294	2	7.21	25	7.0	25	7.0	Schleppen	6.83
65	6.5	0.256	254	3	6.57	24	6.40				
60	6.0	0.236	216	4	6.04	23	5.90	24	5.96	Grob Rinken ...	6.00
55	5.5	0.217	182	5	5.58	22	5.40	23	5.45	Fein Rinken... ...	5.53
50	5.0	0.197	150	6	5.15	21	4.90				
46	4.6	0.181	127	7	4.57	20	4.40	22	4.65	Malgen	4.70
42	4.2	0.165	106	8	4.19	19	3.90	21	4.20	Grob Memel... ...	4.12
38	3.8	0.150	87	9	3.75			20	3.84	Mittel Memel ...	3.82
34	3.4	0.134	69	10	3.40	18	3.40	19	3.40	Fein Memel	3.40
31	3.1	0.122	58	11	3.04	17	3.0	18	2.92	Klink Memel ...	2.96
28	2.8	0.110	47	12	2.76	16	2.70	17	2.60	Natel	2.60
25	2.5	0.098	38	13	2.41	15	2.40	16	2.40	Mittel...	2.36
22	2.2	0.087	29			14	2.20	15	2.20	Dunn Mittel ...	2.15
20	2.0	0.078	24	14	2.04	13	2.0	14	2.04	3 Schillings	1.96
18	1.8	0.071	19	15	1.82	12	1.80	13	1.84	4 Schillings	1.74
16	1.6	0.063	15	16	1.65	11	1.60	12	1.66	2 Band	1.55
14	1.4	0.055	12	17	1.47	10	1.50	11	1.56	1 Band	1.40
13	1.3	0.051	10			9	1.40	10	1.40		
12	1.2	0.047	9	18	1.24	8	1.30	9	1.30	3 Band	1.25
11	1.1	0.043	7			7	1.20	8	1.20	4 Band	1.12
10	1.0	0.039	6	19	1.06	6	1.10	7	1.12	5 Band	1.03
9	0.9	0.035	5	20	0.88	5	1.0	6	1.0	6 Band	0.88
8	0.8	0.0315	4	21	0.81	4	0.90	5	0.88	7 Band	0.83
7	0.7	0.028	3	22	0.71	3	0.80	4	0.80	Ord. Munster or 1 Blei	0.71
6	0.6	0.024	2.2	23	0.68	2	0.70	3	0.76	Fein Munster ...	0.65
5/5	0.55	0.022	1.8	24	0.55	1	0.60	2	0.68	Gattung or 3 Blei ...	0.60
5	0.5	0.020	1.5	25	0.50			1	0.60	Feine Gattung ...	0.55
4/5	0.45		1.2	26	0.45	P	0.50			1 Holl or 4 Blei ...	0.5
4	0.4		1.0	27	0.40					2 Holl or 5 Blei ...	0.46
3/7	0.37		0.8	28	0.35					3 Holl or 6 Blei ...	0.42
3/4	0.34		0.7	29	0.33					4 Holl or 7 Blei ...	0.39
3/1	0.31		0.6	30	0.30					5 Holl or 8 Blei ...	0.36
2/8	0.28		0.5								
2/6	0.26		0.4	31	0.25					6 Holl or 10 Blei ...	0.31
2/4	0.24		0.35							7 Holl or 12 Blei ...	0.28
2/2	0.22		0.3	32	0.22					8 Holl or 14 Blei ...	0.26
2	0.2		0.25	33	0.20					9 Holl or 15 Blei ...	0.24
										10 Holl or 16 Blei ..	0.22
										11 Holl or 17 Blei ...	0.20

Digitized by Google

RESISTANCE AND WEIGHT TABLE.

(From "The Electrician.")

The resistances are calculated for pure copper wire.

The number of feet to the pound is only approximate for insulated wire.

Diameter.	Feet per pound.			Resistance, naked copper.			
	Cotton-covered.	Silk-covered.	Naked.	Ohms per 1,000 ft.	Ohms per mile.	Feet per ohm.	Ohms per pound.
·12849	..	..	20	·6259	3·3	1600·	·0125
·11443	..	..	25	·7892	4·1	1272·	·0197
·10189	..	..	32	·8441	4·4	1185·	·0270
·09074	..	..	40	1·254	6·4	798·	·0501
·08081	42	46	50	1·580	8·3	633·	·079
·07196	55	60	64	1·995	10·4	504·	·127
·06408	68	75	80	2·504	13·2	400·	·200
·05707	87	96	101	3·172	16·7	316.	·320
·05082	110	120	128	4·001	23·	230·	·512
·04525	140	150	161	5·04	26·	193·	·811
·0403	175	190	203	6·36	33·	157·	1·29
·03539	220	240	256	8·25	43·	121·	2·11
·03196	280	305	324	10·12	53·	99·	3·27
·02846	360	390	408	12·76	68·	76·5	5·20
·02535	450	490	514	16·25	85·	61·8	8·35
·02257	560	615	649	20·30	108·	48·9	13·3
·0201	715	775	818	25·60	135·	39·0	20·9
·0179	910	990	1030	32·2	170·	31·0	33·2
·01594	1165	1265	1300	40·7	214·	24·6	52·9
·01419	1445	1570	1640	51·3	270·	19·5	84·2
·01264	1810	1970	2070	64·8	343·	15·4	134·
·01126	2280	2480	2617	81·6	432·	12·2	213·
·01002	2805	3050	3287	103·	538·	9·8	338·
·00893	3605	3920	4144	130·	685·	7·7	539·
·00795	4535	4930	5227	164·	865·	6·1	856·
·00708	..	6200	6590	206·	1033·	4·9	1357·
·0063	..	7830	8330	260·	1389·	3·8	2166·
·00561	..	9830	10460	328·	1820·	2·9	3521·
·005	..	12420	13210	414·	2200·	2·4	5469·

Digitized by Google

RESISTANCE OF A WIRE 1 MÈTRE LONG, 1 MILLIMÈTRE IN DIAMETER.

	Ohms.	Approximate Comparative Resistance.
Silver, annealed	0·01937	1
„ hard drawn	0·02103	1·09
Copper, annealed	0·02057	1·06
„ hard drawn	0·02104	1·09
Gold, annealed	0·02650	1·38
„ hard drawn	0·02697	1·39
Aluminium, annealed	0·03751	1·94
Zinc, pressed	0·07244	3·75
Platinum, annealed	0·1166	6·08
Iron, annealed	0·1251	6·80
Nickel, annealed	0·1604	8·30
Tin, pressed	0·1701	8·80
Lead, pressed	0·2527	13·60
Antimony, pressed	0·4571	23·65
Bismuth, pressed	1·689	87·20
Mercury, liquid	1·2247	62·50
Platinum-silver Alloy (2 parts Platinum, 1 part Silver, by weight)	0·3140	16·10
German Silver (commonly used for resistance coils)	0·2695	14·87
Gold Silver (2 parts Gold, 1 part Silver, by weight)	0·1399	7·22

WEIGHTS OF IRON WIRE OF DIFFERENT GAUGES.

B.W.G.	lbs. per knot.	B.W.G.	lbs. per knot
00	2066·68	9	368·64
0	1716·48	10	305·82
1	1393·92	11	241·99
2	1212·20	12	184·32
3	1048·32	13	144·00
4	872·80	14	109·44
5	748·80	15	86·40
6	622·08	16	65·66
7	529·92	17	50·68
8	449·28	18	39·16

Digitized by Google

DIMENSIONS OF CORES OF IMPORTANT CABLES.

Name of Cables	Copper Conductor.		Gutta Percha.		Approximate ratio $\frac{D}{d}$
	Total Weight in lbs. per Knot.	Total Diameter of Conductor=d	Weight in lbs. per Knot.	Diameter in inches=D	
Red Sea Cable	180	0·105	212	0·34	3·4
Malta, Alexandria Standard	400	0·162	400	0·457	2·95
Persian Gulf	225	0·109	275	0·38	3·48
First Atlantic	107	0·083	260	0·38	4·1
Second Atlantic	300	0·144	400	0·464	3·28
England and Holland	143	0·095	223	0·34	3·47
Toulon and Algiers	107	0·083	223	0·34	4·26
Varna, Balaclava	73	0·062	166	0·3	4·84
French Atlantic	400	0·159	400	0·463	2·92

RECEIPT FOR TARRING TELEGRAPH POLES.

(PREECE & SIVEWRIGHT.)

For One Hundred lbs. Paint.

White Lead	70 lbs.
Driers	5 lbs.
Umber	5 oz.
Boiled Oil	10 quarts.
Turpentine	5 pints.

ENGLISH AND FRENCH MEASURES.

	Mètres.
Length 1 mile .. .. =	1609·3149
,, 1 furlong .. =	201·1644
,, 1 pole .. .. =	5·0291
,, 1 fathom .. =	1·828767
,, 1 yard .. .. =	0·914383
,, 1 foot .. .. =	0·304794
,, 1 inch .. .. =	0·025400

	Decim. cubes.
Volume 1 cubic yard .. =	764·513
,, 1 cubic foot .. =	28·315296
,, 1 cubic inch .. =	0·016386

	Litres.
Capacity 1 gallon .. .. =	4·543
,, 1 quart .. .. =	1·136
,, 1 pint .. .. =	0·568

	Kilogrammes
Poids 1 ton .. .. .. =	1016·048
,, 1 cwt. .. .. =	50·802
,, 1 quarter .. .. =	12·700
,, 1 stone .. .. =	6·350
,, 1 lb. .. .. .. =	0·454

	Grammes.
,, 1 oz. .. .. .. =	28·350
,, 1 dram .. .. =	1·772

15 lbs. pressure to the square inch,=1 Kilogramme per square Centimètre.

Digitized by Google

COMPARISON OF ELECTRO MOTIVE FORCE OF BATTERIES.

No.	Name.	Negative Pole.	In.	Positive Pole.	In.	Electro motive Force.
						Volts.
1	Daniell (Telegraph) ..	Amalgamated Zinc ..	1 Sulphuric Acid, and 12 Water	Copper	Saturated solution of Sulphate of Copper in Water	0·978
2	Daniell	Amalgamated Zinc ..	1 Sulphuric Acid, and 12 Water	Copper	Nitrate of Copper and Water (saturated)	1·000
3	Marié Davy	Amalgamated Zinc ..	1 Sulphuric Acid, and 12 Water	Carbon	Paste of Protosulphate of Mercury and Water	1·524
4	Le Clanché	Amalgamated Zinc ..	Water containing Sal-am-moniac	Carbon, surrounded by Peroxide of Manganese and Carbon particles	Water and Sal-am-moniac	1·481
5	Bunsen	Amalgamated Zinc ..	1 Sulphuric Acid, and 12 Water	Carbon	Nitric Acid (fuming)	1·964
6	Bunsed	Amalgamated Zinc ..	1 Sulphuric Acid, and 12 Water	Carbon	Nitric Acid (1·38)	1·888
7	Chromate	Amalgamated Zinc ..	100 Water, 12 Chromate of Potassium, and 25 Sulphuric Acid	Carbon	1 Sulphuric Acid, and 12 Water	2·028
8	Grove	Amalgamated Zinc ..	1 Sulphuric Acid, and 4 Water	Platinum	Nitric Acid (fuming)	1·956

Specific Resistance (or resistance of one cubic centimètre) of Carré's electric carbons = 3927 microhm.
Do. do. (do.) of pure copper = 1 microhm, 616.
Proportion, 1 to 2430.
Resistance of a carbon pencil (Carré's make) one mètre long, one millimètre diameter = 50 ohms.
Resistance of carbon pencils of one mètre length at 20° cent.

Diameter.	Resistance in ohms.	Diameter	Resistance in ohms.
1 millimètre	50	4 millimètre.....	3·125
2 ,, ...	12·50	5 ,, ...	2·00
3 ,, ...	5·55	6 ,, ...	1·39

Digitized by Google

DIFFERENCE OF TIME

BETWEEN

GREENWICH MEAN TIME

AND

THE FOLLOWING PLACES.

EAST LONGITUDE.

(To be added to Greenwich Time.)

	H.	M.
Adelaide	9	14
Aden	3	0
Agra	5	11
Akyab	6	11
Alexandria	1	59
Algiers	0	11
Algoa Bay	1	44
Amoy	7	52
Athens	1	34
Auckland	11	23
Bangkok	6	41
Banjoewangie	7	37
Batavia	7	7
Bathurst, N.S.W.	9	16
Bencoolen	6	49
Berlin	0	53
Berne	0	49
Bombay	4	51
Bona	0	28
Borneo	7	39
Brisbane	10	13
Bushire	3	23
Bussorah	3	11
Cabul	4	57
Cairo	2	5
Calcutta	5	53
Cambodia	7	0
Canton	7	33
Cape Town	1	13
Christchurch N.Z.	11	32
Chusan	8	8
Colombo	5	19
Constantinople	1	56
Dunedin	11	22
Fernando Po	0	36
Galle	5	20
Hokitika	11	24
Hongkong	7	36
Hobart Town	9	50
Invercargil	11	12
Jerusalem	2	21
Kurrachee	4	27
Lahore	4	57
Madras	5	21
Malta	0	58
Malacca	6	49
Manilla	8	3
Marseilles	0	21
Mauritius	3	50
Mecca	2	40
Melbourne	9	40
Moulmein	6	30
Mozambique	2	43
Nagasaki	8	40
Nankin	7	55
Natal	2	2
Odessa	2	2
Otago	11	23
Paris	0	9
Pekin	7	46
Penang	6	42
Pondicherry	5	19
Poonah	4	55
Port Darwin	8	44
Rangoon	6	20
Rome	0	49
Saigon	7	6
Samarang	7	21
Shanghai	8	5
Simla	5	1
Singapore	6	55
Smyrna	1	49
Soerabaya	7	30
St. Petersburg	2	1
Suez	2	10
Sumbawa	7	46
Sydney	10	5
Tamatave	3	17
Teheran	3	25
Tunis	0	40
Vienna	1	5
Wellington	11	38
Yeddo	9	18
Zanzibar	2	37

WEST LONGITUDE.

(To be substracted from Greenwich Time.)

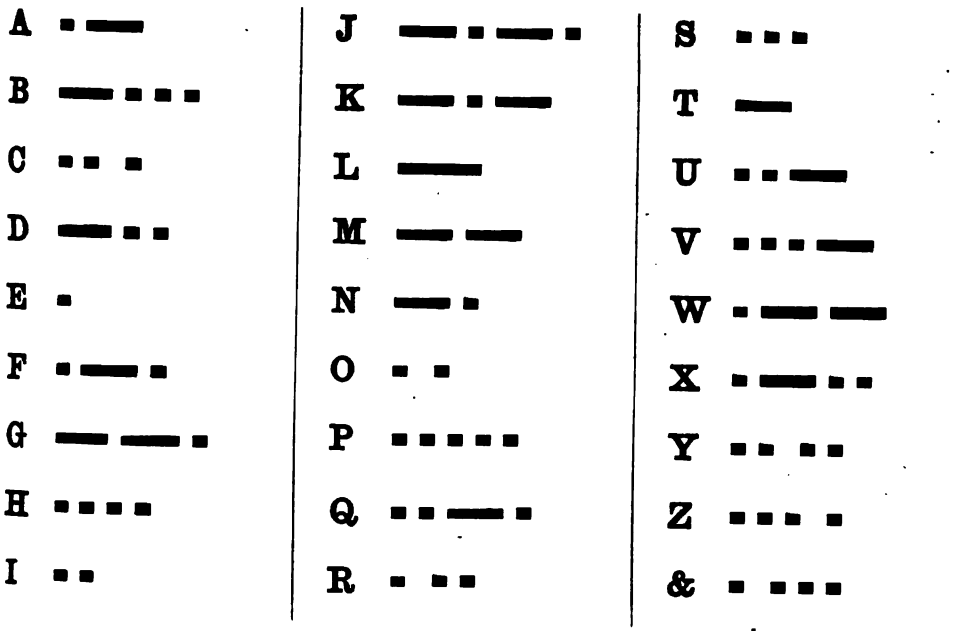
	H.	M.
Acapulco	6	39
Asuncion	3	50
Atkar	11	37
Bahia	2	33
Barbadoes	3	58
Belize	5	53
Bermuda	4	19
Brest	0	18
Bogoto	4	57
Buenos Ayres	3	53
Callao	5	8
Cape de Verde Islands	1	40
Cayenne	3	29
Charlestown	5	20
Chicago	5	50
Chuqisaka	4	27
Ciara	2	34
Conception	4	52
Coquimbo	4	45
Copiapo	4	42
Cuxbury	4	44
Funchal	1	8
Gibraltar	0	21
George Town	3	53
Great Salt Lake City (Utah)	7	28
Graham's Town	1	46
Guayaquil	5	19
Guatemala	6	2
Halifax	4	15
Havannah	5	29
Heart's Content	3	34
Honolulu	10	31
Jamaica	5	6
Juan Fernandez	5	16
Key West	5	26
Kingston (Jamaica)	5	7
Lisbon	0	36
Lima	5	8
Mendoza	4	35
Madiera	1	7
Madrid	0	15
Mexico	6	36
Montevideo	3	45
Montreal	4	54
Newport	6	4
New Orleans	6	0
New York	4	56
Panama	5	18
Para	3	14
Paranahyba	2	47
Pernambuco	2	20
Philadelphia	5	1
Porto Rico	4	26
Quebec	4	45
Quito	5	13
Rio Grande de Sul	3	29
Rio de Janiero	2	52
Sandwich Islands	10	31
Saint Louis	6	0
Saint Thomas	4	19
Saint Vincent (Cape de Verde)	1	40
Santa Catharina	3	13
San Jose	5	35
San Francisco	8	8
Santiago de Chili	4	43
Santos	3	6
Sierra Leone	0	35
Toronto	5	18
Trinidad	4	6
Truxillo	5	16
Valdivia	4	53
Valencia (Ireland)	0	41
Valparaiso	4	46
Vancouver's Island	8	14
Vera Cruz	6	25
Vigo	0	35
Villa Real	0	29
Washington	5	8

Telegraphic Time for all India is taken from the Meridian of Madras.

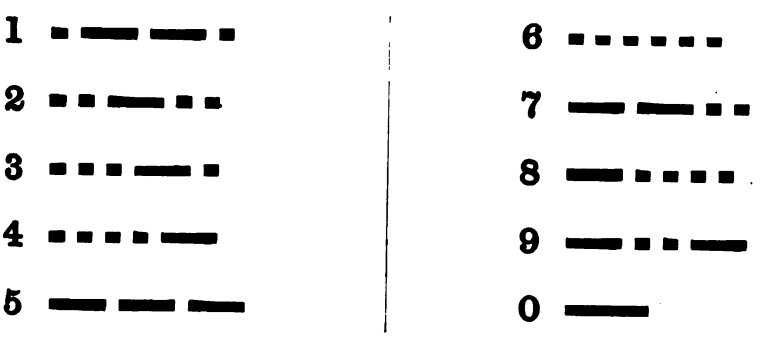
Digitized by Google

AMERICAN MORSE CODE.

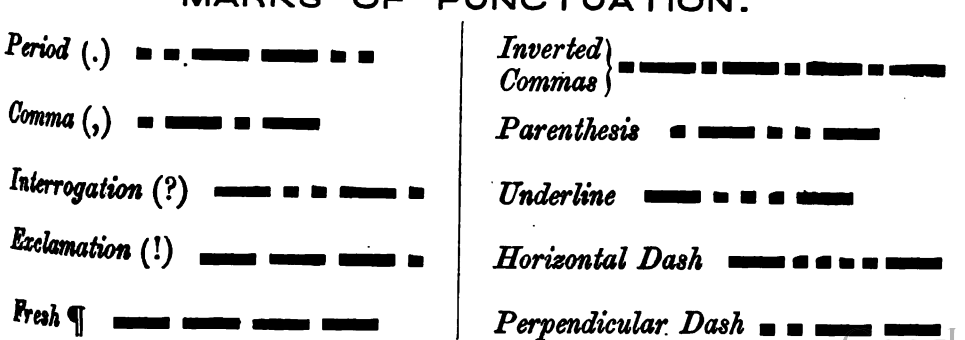
ALPHABET.



NUMERALS.



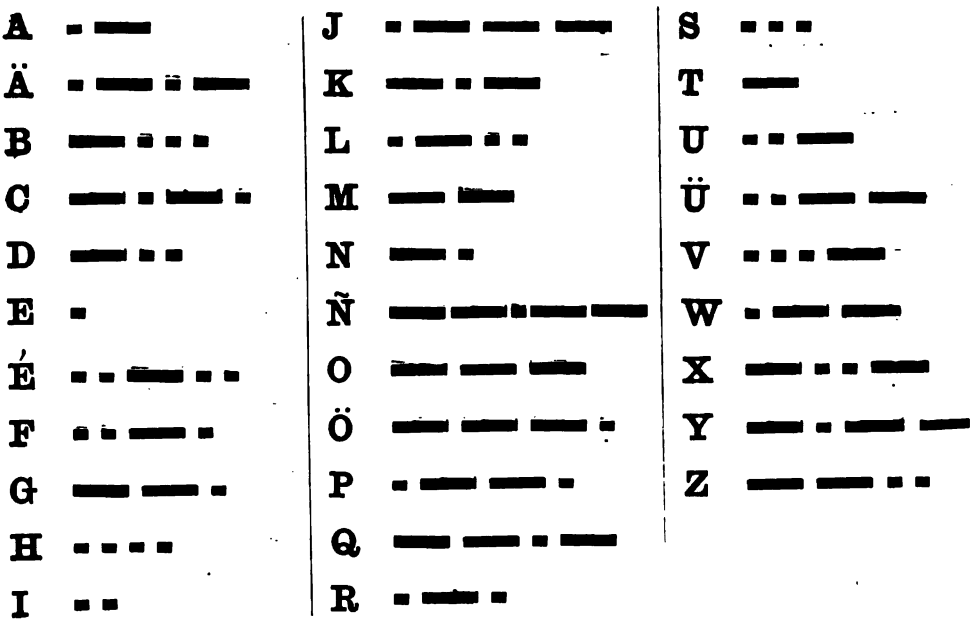
MARKS OF PUNCTUATION.



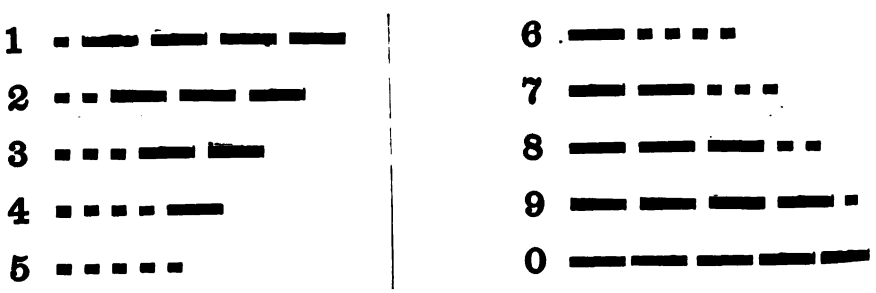
Digitized by Google

INTERNATIONAL MORSE CODE.

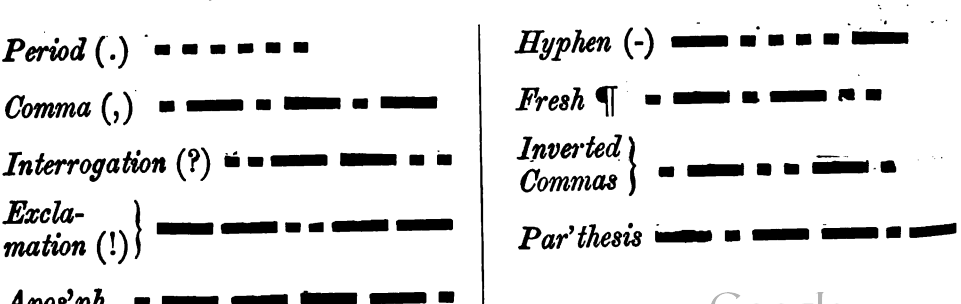
ALPHABET.



NUMERALS.



MARKS OF PUNCTUATION.



Digitized by Google

UNIVERSAL MORSE CODE.

A proposed Telegraphic Alphabet suitable for all Languages, from "*The Operator.*"

ALPHABET.

A ·—	J ·——·—	S ···
Ä ·—·—	K —·—··	T —
B —···	L ·—··	U ··—
C —·—·	M ——	Ü ··—·—
D —··	N —·	V ···—
E ·	Ñ ··———	W ·——
É ——····	O ———·	X —···
F ·————	Ö ————	Y —·——
G ——·	P ·····	Z ——··
H ····	Q ——·—	& ·———···
I ··	R ·—·	

NUMERALS.

1 ·————	6 —·····
2 ··———	7 ——···
3 ···——	8 ———··
4 ····—	9 ————·
5 ·····	0 —————

MARKS OF PUNCTUATION.

Period (.) ·—·—·—	*Hyphen* (-) —····—
Comma (,) ——··——	*Fresh* ¶ ·—·—·
Interrogation (?) ··——··	*Inverted Commas*)——·——·——·——(
Exclamation (!) ———··	*Par'thesis* —·——·—
Apos'ph. (') ·————·—	*Underline* ··——·—

Accent (very important in Span. mess'ges). ——··—

Digitized by Google

Cheap.

HODSON'S PATENT HIGH-SPEED, EXPANSIVE, DIRECT-ACTING ROTARY ENGINE,

Manufactured by the THAMES IRONWORKS & SHIPBUILDING CO., Limited, Blackwall, London, E.

Economical.

NO CRANKS OR CONNECTING RODS.
NO GLANDS TO REQUIRE PACKING.
NO RECIPROCATING PISTONS.

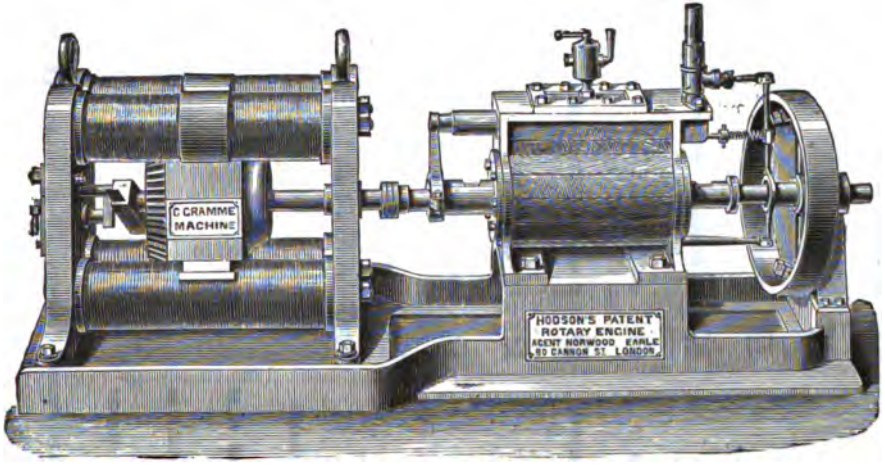
J. A. BERLY'S BRITISH, AMERICAN AND CONTINENTAL

Combining Economy, Efficiency, Simplicity, Regularity and Durability.

22

AS SUPPLIED TO

THE ANGLO-AMERICAN BRUSH ELECTRIC LIGHT CORPORATION.
THE BRITISH ELECTRIC LIGHT COMPANY.
THE "VELASCO."
THE "GRAVINA."



MESSRS. SIEMENS BROS. and CO.
THE INDIA RUBBER, GUTTA PERCHA, and TELEGRAPH WORKS COMPANY (Limited), &c., &c.

Can be seen at the Manufacturers' Works, above. INSPECTION INVITED.

Simple.

SPECIALLY ADAPTED FOR DRIVING DYNAMO-ELECTRIC MACHINES.
Patentee's Agent:—Mr. NORWOOD EARLE, 80, Cannon Street, LONDON, E.C.

Successful.

Digitized by Google

HENRY GREENE & SON,

153—155, CANNON STREET, LONDON BRIDGE,

Manufacturers of all kinds of

ELECTROLIERS,

SIDE BRACKETS, AND STANDARDS,

Either in GLASS, BRASS, or other Metal.

DESIGNS AND ESTIMATES SUBMITTED TO SUIT SPECIAL REQUIREMENTS.

Electric Engineers' own Drawings Accurately carried out in every detail.

EXISTING CHANDELIERS AND FITTINGS ADAPTED FOR THE ELECTRIC LIGHT.

J. A. BERLY'S

LONDON

TRADES DIRECTORY.

VULCANITE.

SHEETS.	HARBURG INDIA-RUBBER COMB CO.,	Battery Cells.
RODS.	London Warehouse: F. WINTER,	Insulators.
TUBES.	138, LONDON WALL, WOOD ST., E.C.	Telephone Cases.
	MOULDED ARTICLES TO ORDER.	

EBONITE.

Digitized by Google

THE

London Electric Wire Co.,

WENLOCK BUILDINGS, IRONMONGER ROW,

OLD STREET, LONDON, E.C.

Manufacturers of Covered Wires of all descriptions for Electrical Instruments, Dynamo Machines, Bell & House Work, &c.

FANCY PARAFFINED WIRES,

SPECIALLY PREPARED FOR

TELEPHONE AND OTHER INDOOR CONNECTIONS.

INCOMBUSTIBLE WIRES FOR ELECTRIC LIGHT BRANCH CIRCUITS, LEADING LINES, &c., &c.

CONTRACTORS TO THE PRINCIPAL

GOVERNMENT DEPARTMENTS, AND ELECTRIC LIGHT AND TELEPHONE COMPANIES.

Digitized by Google

LONDON CLASSIFIED TRADES.

Acid Manufacturers.

F.—Acides (Fabricants d').
G.—Säure-Fabrikanten.

Beckles, S. H. & Co., 6, Lime-st.-square, E.C.
London Chemical Co., Bow-bridge-wharf, E.
Pass, John, 3, Bishopsgate-st.-without, E.C.
Wallace, H. & Co., 60, Mark-lane, E.C.

Accumulators of Electricity.

F.—Accumulateurs d'Electricité.
G.—Electrische Accumulatoren.

Apps, A., 433, Strand, W.C. *See index to advertisers.*
BERLY, J. A., C.E., A.S.I.E., &c., 16, New Bridge-street, E.C. Agent for J. G. I. Wood's Patent Accumulators. *See index to advertisers.*
BIRMINGHAM AND WARWICKSHIRE (BRUSH) ELECTRIC LIGHT & POWER CO., LIMITED, 110, Cannon-st., E.C.
ELECTRIC TRADING COMPANY, 2, Victoria-mansions, Westminster, S.W. *See index to advertisers.*
ELECTROLYTIC CO. (THE), Charlotte-st, Blackfriars, S.E. *See index to advertisers.*
FAURE ELECTRIC ACCUMULATOR COMPANY, Limited, 71, Queen-st., Queen Victoria-st., E.C. See index to advertisers.
FERRANTI THOMPSON & CO., LIMITED, 3, Fenchurch-avenue, E.C.
HAMMOND ELECTRIC LIGHT & POWER SUPPLY CO., 110, Cannon-st., E.C.
Woodhouse & Rawson, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Air-tight Glass Case Makers.

F.—Vitrines Hermétiques.
G.—Luftdichte Glaskasten.

Abbotson & Smith, 101, Leadenhall-st., E.C.
Colls, George, 68, Brunswick-place, City-rd., N.
Drew & Cadman, 245 & 246, High Holborn, W.C.
Hay, W. & Sons, 24 & 25, Little Queen-st., W.C.
Hogben, Thomas, 3, City-road, E.C.
Howett, Samuel, 4, Lindley-st, Sidney-st, Mile-end, E.
Jeffreys, Charles, 163, Hatton-garden, E.C.
Kidston, Filmer, Duke-st, Bishopsgate, E.
Lee, William Henry, 25, Broadley-terrace, Blandford-square, N.W.
NATALI, ELKANAH, 207, Old-st, E.C.

Air Tight Glass Case Makers—*continued.*

Over, Thomas, 76, Kingsland-road, E.
Panter & Powditch, 10, Little Queen-st., W.C.
SAGE, FREDERICK, 80, Gray's-inn-road, W.C. *Largest selection in the world.*
Shurlock, Charles & Son, 34, Grange-st, Hoxton, N.
Somerville & Smith, 34, Eagle-st., Red Lion-st, W.C.
Tatum, James, 32 & 33, King David-lane, Shadwell, E.
Teague, John & Son, 42, Frederick-st., Gray's-inn-road, W.C.
Thomson, Walter, 43, St. John-st.-road, E.C.
Treble, George & Son, 72, Crondall-st., N.
Wooton, Samuel & Co., 72 & 73, Myddelton-st., E.C.
Yardley, S. & Sons, 25, Mount-pleasant, Clerkenwell.

Anti-Friction Metal Makers.

F.—Metal Anti-Friction.
G.—Anti-Friction-Metall-Fabrikanten.

Dewrance, John & Co., 158, Great Dover-st., S.E.
Gibb, James & Co., 23, St. Mary-axe, E.C.
Lohmann, C., 43, London-wall, E.C.
Manganese, Bronze & Brass Co., Limited, Lombard-st., Southwark, S.E.
McCall, Donald & Co., 8, Ashburnham-grove, Greenwich, S.E.
Stone & Co., Deptford, S.E.
Tangye Bros., 35, Queen Victoria-st., E.C. *See index to advertisers.*

Antimony Dealers.

F.—Antimoine (Fab. d').
G.—Antimonium-Händlers.

Johnson, Matthey & Co., Hatton-garden, E.C.
Reed, Michael Alfred & Co., 12, Fenchurch-st., E.C.

Antimony Refiners.

F.—Antimoine (Raffineurs d').
G.—Antimonium Läuterer.

Cookson, & Co., 26, Philpot-lane, E.C.
Hallett & Fry, 202, Rotherhithe-st., E.C.
Johnson, Matthey & Co., Hatton-garden, E.C.
Pontifex & Wood, Shoe-lane, E.C.
Pratt, James Jerrane & Son, 79, Queen-st., E.C.

Digitized by Google

Asbestos Manufacturers & Mine Owners.

F.—Amiante (Fab. d')
G.—Asbest-Fabrikanten.

Bell, John, 118, Southwark-st., S.E.
BINSWANGER, G. & CO., 33, Aldermanbury, E.C.
Gibb, James & Co., 23, St. Mary-axe, E.C.
United Asbestos Co., Limited (The), 161, Queen Victoria-st., E.C. *See index to advertisers.*
Witty & Wyatt, Billiter House, Billiter-st., E.C.
See index to advertisers

Asbestos Merchants.

F.—Amiante (Marchands d').
G.—Asbest-Händlers.

Bolling & Lowe, 2, Laurence Pountney-hill, E.C.
Brown, John Douglas, & Co., 351, Mile-end-rd., E.
Harrison, William & Co., 9, New Broad-st., E.C.
Michel & Co., 51, New Oxford-st., W.C.
Skudder, George & Co., Thornburn-square, Bermondsey, S.E.
Taylor & Co., 90, Hatton-garden, E.C.
Turin Asbestos Company, 23, Addle-st., E.C.
UNITED ASBESTOS CO., LIMITED, 161, Queen Victoria-st., E.C. *See index to advertisers.*
Werner & Kœnig, 23, Addle-street, E.C.
Wertheim, Louis, 63, Finsbury-pavement, E.C.

Assay Office & Laboratory Apparatus Makers.

F.—Bureau d'essai.
G.—Verfertiger von Laboratorien-Apparate.

Apps, A., 433, Strand, W.C. *See index to advertisers.*
Johnson, Matthey & Co., Hatton-garden, E.C.
ORME & CO., J. (late M. Jackson & Co.), 65, Barbican, E.C.

Assayers.

F.—Essayeurs.
G.—Edelmetall-Schmelzer.

Cameron, J. M., 52, Lime-st., E.C.
CLAUDET, FREDERIC, 6 & 7, Coleman-st., E.C.
Griffith, D. C., 74, Coleman-st., E.C.
Harris, E. H., 14, Devonshire-square, E.C.
Jackson, Edgar, 106, Queen Victoria-st., E.C.
Johnson, Matthey & Co., Hatton-garden, E.C.
Johnson, John & Sons, 23, Cross-st., Finsbury, E.C.
Riley, Edward, 2, City-road, E.C.

Balance Makers.

F.—Balances.
G.—Waagen.

Apps, A., 433, Strand, W.C. *See index to advertisers.*
BECKER, F. E. & CO., 34, Maiden-lane, Covent-garden, E.C.
CONTI, A. E., 26A, Smith-st., Percival-st., Goswell-road, E.C. *See index to advertisers.*

Balance Makers—*continued.*

Napier, David & Son, Vine-st., York-road, Lambeth, S.E.
Oertling, Ludwig, Turnmill-st., Clerkenwell-green, E.C.
Stone, William, 44, Gloucester-street, Bloomsbury, W.C.
WOLTERS, OTTO, 55, Upper Marylebone-st., W.

Battery Jars Manufacturers.

F.—Jarres pour Piles Electriques.
G.—Batterie-Glocken.

BASTIN, CHARLES, Vauxhall-walk, S.E. *See index to advertisers.*
BOURNE, JOSEPH & SONS, 6, St. Pancras Station, Euston-road, N.W. Works, Denby Pottery, near Derby. *See index to advertisers.*
Doulton & Co., 28, High-st., Lambeth, S.E.
ELECTRICAL TRADING CO., 2, Victoria-mansions, Westminster, S.W. *See index to advertisers.*
LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; & 42, Rue de Ruysbroeck, Brussels. Lelanche, Daniel, Oatland, Maiche, Mary-Davy sulphate of lead, Bunsen's bichromate, carbon plates, terminals, rings, etc., etc.
MALING, C. T., Ford Pottery, Newcastle-on-Tyne, London Sample Rooms, 20, Bartlett's-buildings, Holborn-circus, E.C. *See index to advertisers.*
PEARSON, JAMES, Whittington Moor Potteries, near Chesterfield. London Sample Rooms, 20, Bartlett's-buildings, Holborn-circus, E.C. *See index to advertisers.*
Schoth, G. A., 232, Euston-road, N.W.
STIFF, JAMES & SONS, London Pottery, Lambeth, E.C. (Established 1751.) *See index to advertisers.*

Battery Manufacturers.

F.—Piles Electriques (Fab. de).
G.—Electrische Batterien.

Berry, F. H., 8, Percival-st., Clerkenwell, E.C.
ELECTRICAL POWER & STORAGE COMPANY, 4, Great Winchester-st.-buildings, E.C. (H. Bell, Secretary.)

Bell Hanging Engineers.

F.—Poseurs de Sonnettes.
G.—Ingenieure für Electrische-Glocken.

BRYDEN, JOHN & SONS, 2, Bulstrode-st, (corner of Welbeck-st.), Cavendish-square, W.; and at 16, Frederick-st, Edinburgh; 24, Renfield-st., Glasgow; 7, Princes-st., Perth; Commercial-st., Dundee. (Established 1809.) *See index to advertisers.*
Clarke, J. F., 49, Moorgate-st., E.C.
CUTTING, R. C. & CO., Wardrobe-chambers, Queen Victoria-st., E.C. *See index to advertisers.*

Digitized by Google

Bell Hanging Engineers—*continued.*

DALE, H. & E. J., 4, Little Britain, E.C.; 26, Ludgate-hill, E.C. *See index to advertisers.*
Edmundson, J. & Co., 19, Great George-st., S.W.
Gale, Samuel & Son, 5, Marylebone-passage, Wells-st., Oxford-st., W.
Plowman, James Reynolds, 82, Harrow-rd., W.
Temple, R., & Crook, F., 6, Motcomb-st., Belgrave-square, S.W.

Belting Manufacturers.

F.—Courroies (Fab. de).
G.—Maschinenriem-Fabrikanten.

BARR, R., Agent in London for P. D. Scott, Dundee. Patent Link Leather Belting. East India Docks, Poplar, E. *See index to advertisers.*
Hepburn & Gale, Long-lane, Borough, S.E. *See index to advertisers.*
India-Rubber, Gutta-Percha, & Telegraph Company's Station Works, 106, Cannon-st., E.C.
NOBES, HOMAN & HUNT, 75, Rockingham-st., S.E. *See index to advertisers.*
Norris, S. E. & Co., 56, 57 & 58, High-st., & St. Paul's Works, Shadwell, E. Manufacturers of Wire-sewn Belting.
NORTH BRITISH RUBBER CO., LD., Warehouses: 6, Charlotte-st., Mosley-st., Manchester; 57, Moorgate-st., London, E.C.; & 13 & 15, Oswald-st., Glasgow. Works, Castle Mills, Edinburgh.
Webb & Son, 11, Leadenhall-st., E.C.

Boiler Non-Conducting Composition Makers.

F.—Calorifuge (Fab. de).
G.—Composition zur Verdichtung der Dampfkessel.

Acme Cement Co., 154A, Ormside-st., Old Kent-road, S.E.
Barnard, J., & Co., 170, High-st., Stratford, E.
Catchpole & Co., 154, Ormside-st., S.E.
Dade, D. H. & Co., New Church-st., Jamaica-road, Bermondsey, S.E.
DUNCAN BROS., 32, Queen Victoria-st., E.C. *See index to advertisers.*
Ellis & Co., 59, Mark-lane, E.C.
Glenfield's Boiler Fluid Agency, 37, Walbrook, E.C.
Goodman, Chas., & Co., 183, Lambeth-walk, S.E.
Haacke, A. & Co., 21, Lime-st., E.C.
Jones, John Alcock, 37, Gracechurch-st., E.C.
Keenan, M., 139, Tredegar-road, E.
LEABON & CORFE, Bridge-st. and Plough-lane, Homerton, E.
Leroy, F. & Co., 11, Gray-st., Commercial-road-east, E.
Lieuw, A. H. & Co., 374, Commercial-road-east, E.
London Chemical Co., Bow Bridge-wharf, E.

Boiler Non-Conducting Composition Makers—*continued.*

Payne & Co., 37, Eastcheap, E.C.
Pollard, J. D. & Co., 35, Fairfield-road, E.
Thames Steam Boiler Covering Co., 22, White Horse-st., E.
Toope's Asbestos Co., Limited, Ben Johnson's-road, Stepney, E.
Wilson, John, H. & Co., 110, Cannon-st., E.C.
Wilson's Combined Low Water Steam Safety Alarm Co., Ld., 49 & 50, Palace-chambers, Bridge-st., S.W.
York Engineering Co., Ld., 89 & 90, Palace-chambers, Bridge-st., S.W.

Bolt & Nut Manufacturers.

F.—Boulons et écrous.
G.—Bolzen- und Schrauben-Fabriken.

Adams & Wood, 132, Upper Thames-st., E.C.
Barwell, Wm., 34, Nicholas-lane, E.C.
Bayliss, Jones & Bayliss, 3, Crooked-lane, E.C.
Cooper, Henry & Co., 9, Fenchurch-st., E.C.
Cotterill, F. W., 97, Cannon-st., E.C.
Gardner J. O. & Co., 134, Fenchurch-st., E.C
Ibbotson Bros. & Co., 4, Westminster-chambers, Victoria-st., Westminster, S.W.
Jukes, Coulson, Stokes & Co., 13, Clement's-lane, E.C.
LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; and 42, Rue de Ruysbroeck, Brussels. All classes of screws, terminals, couplings. Sole agents for Barriére & Co., Paris. Screw cutting-machines, brass and iron drawn rods, etc., etc.
Lloyd Bros. & Co., 97, Cannon-st., E.C.
Lysaght, John, 28, Gracechurch-st., E.C.
MacLellan, P. & W., 209, Upper Thames-st., E.C.
Maddever, Wm. C., 124 & 126, Commercial-st., E.
Mayer, T. & Co., 11, Hart-st., Mark-lane, E.C.
PATENT NUT & BOLT CO., LIMITED, 7, Laurence Pountney-hill, E.C.
Patent Nut & Bolt Co., 24, Budge-row, E.C.
Phœnix Bolt & Nut Co., 90, Cannon-st., E.C.
Pilkington, F. & Co., 41, Redhill-st., Albany-st., N.W.
Rhenish Bolt & Nut Co., 18, Finsbury-circus, E.C.
Robinson, Daniel & Sons, 19, Gracechurch-st., E.C.
Robinson, Geo., 223, West Ferry-rd., Millwall, E.
Simpson & Wood, 11, Hart-st., Mark-lane, E.C.
Spiller, Wm. & Sons, 63, Bishopsgate-st.-within, E.C.
Staffordshire Bolt, Nut, and Fencing Co., 3 & 4, Great Winchester-st., E.C.
Tompson & Co., 1, Broad-st.-buildings, Liverpool-street, E.C.
Twining, G. W. & Co., 81, Gracechurch-st., E.C.
Warden, J. & Sons, 90, Cannon-st., E.C.
Whitford, Wm. & Co., Royal Iron Works, Limehouse, E.
Young, Dowson & Co., 9, Fenchurch-st., E.C.

Digitized by Google

Brass & Copper Founders.

F.—Fondeurs de Bronze et Cuivre.

G.—Messing- und Kupfer-Giessereien.

Abercrombie & Son, 30, 32, & 36, Whitfield-st., W.
Adams, Robert, 7, Great Dover-street, S.E.
Allen, Benj. 32, Gloucester-st., Queen's-square. W.C.
Allen, George, 163, High Holborn, W.C.
Amor & Son, 17, Osborn-st., Whitechapel, E.
Arden, John, 40, Murray-street, N.
Armstrong & Co., 1 & 2, King-st., Poplar, E.
Armstrong & Son, 55, West India-dock-rd., E.
Ashton & Green, Limited, 11, Bury-st., St. Mary Axe, E.C.
Baines, Wm. Newbould, 6, Fenchurch-bldgs. E.C.
BARRETT, R. & SON, Beech-st., Barbican, E.C.
Bartle, J. & Co., 236, Lancaster-rd., Notting-hill, W.
BECK & CO., LIMITED, 130, Great Suffolk-st., Southwark, S.E.
Bennett, F. 150, St. John-st., Clerkenwell, E.C.
Bennett, John J., 167 & 169, Kingsland-rd., E.
Bird, Fredk. & Co., 11, Gt. Castle-st., Regent-st., W.
Blundell Bros., 23, West India Dock-rd., E.
Boik, Thomas, 10, Butcher-row, Ratcliff, E.
Bolding, John & Sons, 19, South Molton-st., W.
Boobbyer, J. H. & Sons, 13 & 14, Stanhope-st., Newcastle-st., Strand, W.C.
Bowen & Co., 6, Mount Pleasant, Clerkenwell, W.C.
Broad, George, 20, Colville-pl., Charlotte-st., W.
Brockley, George, East Ferry-road, Poplar, E.
Byham & Co., 9, New Broad-st., E.C.
Cannadine, John, 353, New Cross-road, S.E.
Carter, Wm. jun. & Co, High-st., Stratford, E.
Caston, Samuel, 17, Fort-st., Spitalfields, E.
CHALLIS BROS., Bushberry Works, Sidney-road, Homerton, E. *See index to adverrtisers.*
Christie, John C., 3 & 5, Mansell-st., Aldgate, E.
Church, Daniel & Co., Gravel-lane, S.E.
Clarke & Timmins, 10, Soho-square, W.
COHEN, D., 8 & 9, Chiswell-st., E.C., and 63, Bishop's-road, Bayswater, W.
Collins, Chas., 52, Queen-Victoria-st., E.C.
Cope & Collinson, 53, Berwick-st., W.
Crapper, Thomas & Co., 50 & 52, Marlborough-road, S.W.
Cressall, Wm., 45, Bedford-row, W.C.
Croydon, John, 20, Cyrus-st., Goswell-rd., E.C.
Cuthbert, W. & Geo., 32, Back Church-lane, E.
DALE, R. F. & Co., Bear-lane, Southwark, S.E. *See index to advertisers.*
Darling, Alex. Jas., 23, Laurence Pountney-lane, E.C.
Day, George, 31, Liverpool-road, N.
Dewrance, John & Co., 158, Great Dover-st., S.E.
Dickson, Jno. Robt., 66, Plumber's-row, Whitechapel, E.
Dorrell, Lambert, 230, King's-rd., Chelsea, S.W.
Downton, J. & Co., 71, West India Dock-rd., E.
Drake, Wm. Son & Co., 30, Budge-row, E.C.

Brass and Copper Founders—*continued.*

Dryden, John, Lower Kennington-lane, S.E.
Dyson & Co., 60, Pitfield-st., Hoxton, N.
Eagles, Henry, 32, Rochester-row, Vauxhall Bridge-road, Westminster, S.W.
Earl & Philp, 113, London-wall, E.C.
East Surrey-road Engineering Works Co., Millwall, E.
Edwards, George A., 15, Devonshire-st., E.
Emanuel, A. & Sons, 53, Marylebone-lane, Oxford-street, W.
Evered, Richard & Co., Ld., 27, Drury-lane, W.C.
Farrow & Jackson, 18, Great Tower-st., E.C.
Farmiloe, George & Sons, 34, St. John-st., West Smithfield, E.C.
Fell, John & Co., 9, Fenchurch-st., E.C.
Felsenthal, Adolph, & Max & Co., 7, Bury-ct., St. Mary Axe, E.C.
Fitzgerald & Barns, 145, Union-st., Borough, S.E.
Forrest & Son, 23, New-st.-square, E.C.
Frost, Isaac & Sons, 8, Allen-st., Goswell-rd., E.C.
Frost, Jos. Wm., 58, White Lion-st., E.
Fuller, Edwin Francis, 43 & 44, Northampton-st., St. John-st.-road, E.C.
Garratt & Fowler, 33, Liebsic-road, Camberwell New-road, S.E.
Gibb, James & Co., 23, St. Mary Axe, E.C.
Grey & Marten, Southwark Bridge, S.E.
Guest & Chrimes, 85, Southwark-st., S.E.
Hall, J. & E., 23, St. Swithin's-lane, E.C.
Harford & Bristol Brass Co., Golden Heart Wharf, Upper Thames-st., E.C.
Harker, Jno. Wm., 187, Upper Thames-st., E.C.
Harris, Hy. M., 58A, Newington Causeway, S.E.
Hart, Son, Peard & Co., 53, Wych-st., Strand, W.C.
Hayes, Hy., 190, 192, & 194, St. John-st., E.C.
Hayward, Tyler, & Co., 84 & 85, Upper Whitecross-st., E.C.
Hendre, F. H., 65½, 66, & 67, York-st., Westminster, S.W.
Hendry, Geo. & Co., Oak-lane, Limehouse, E.
Hood & Co., Deptford-green, S.E.
Huett, Thos., 23 & 25, Three-colt-st., Limehouse, E.
Hunter, James & Walter, 54, High-st., Bromley, E.
Hunt & Mitton, 11, Queen Victoria-st., E.C.
Manlove, Alliott, Fryer & Co., 50, Queen Victoria-st., E.C.
Martineau & Smith, 85, Gracechurch-st., E.C.
Oliver, Geo. & Jos., 19, London-st., E.C.
Pontifex (E. & W.), & J. Wood, Shoe-lane, E.C.
Rundell, Son & Co., 53-57, High-st., Poplar, E.
Shoars, Jas. & Sons, 27, Bankside, S.E.
SIMMONDS, F. H., 21, New Charles-st., Goswell-road, E.C.
Smith Bros., & Co., 31, Spital-sq., Bishopsgate-st. Without, E.
SMITH, JOHN & SONS, 18, 23, & 24, St. John's-sq., E.C.
SPENCER, JAMES E. & SAMUEL, 3, Queen-st.-place, E.C.
Stewart, John & Son, Blackwall Iron Works, Isle of Dogs, E.

Digitized by Google

Brass and Copper Founders—*continued.*

Tylor, J. & Sons, 2, Newgate-st., E.C.
Winfield, R. W. & Co., 47, Holborn-viaduct, E.C. *See index to advertisers.*
WATSON, H. & SON, 18, Abingdon-st., Westminster, S.W.
Young, Dowson, & Co., 9, Fenchurch-st., E.C.

Brass Manufacturers.

F.—Bronze Usines.
G.—Messing-Former.

Abercrombie & Son, 30, 32, & 36, Whitfield-st., W.
Basse & Selve, The United Agencies, Limited, Jeffrey's-square, St. Mary-axe, E.C.
Bossomaier & Co., 72, Finsbury-pavement, E.C.
BURLEY, WM., Tower-chambers, London-Wall, E.C. Electric Bells, Burglar Alarms, and Safety Alarm Bolts. Experienced fitters sent to all parts. Proprietor of Young's Patent Cord Holdfast for Venetian Blinds, and Patent Simplex Ratchet, muslin blind tightner.
CHALLIS BROS., Bushberry Works, Sidney-road, Homerton, E. *See index to advertisers.*
Chesterman, Josiah, 5, Eyre-street-hill, Clerkenwell-road, E.C.
Ching, Comyn & Co., 54, Castle-st., Long-acre, W.C.
Clifford, Chas. & Son, 148, Gresham-house, E.C.
Conolly, Henry, 53 & 55, Hampstead-rd., N.W.
Duck, John Thos., 4, High-st., Vauxhall, S.E.
Emanuel, A. & Sons, 53, 55, & 57, Marylebone-lane, W.
Ettling, Leopold, 21, Princes-sq., St. George's-st., E.
Evered, Richard & Co., Limited, 27, 28, 29, & 30, Drury-lane, W.C.
Everitt (Allen) & Sons, 118, Cannon-st., E.C.
Faraday & Son, 3, Berners-st., Oxford-st., W. *See index to advertisers.*
Harford & Bristol Brass Co., Golden Heart Wharf, Dowgate, Upper Thames-st., E.C.
Harrison, George, 20, Drury-lane, W. C.
Harriss, Hy. Morriss, 58A, Newington-causeway, S.E.
Lambert, W. Thos., 9 & 10, Tabernacle-row, E.C.
LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris, and 42, Rue de Ruysbroeck, Brussels. Importer of French Brass Rods, plain and drawn, to any pattern.
ORMISTON & CO., 25 & 27, Old-st., St. Lukes. *See index to advertisers.*
Owen, Arthur, 121, Shadwell High-st., E.
Pedlar, William, 4 & 5, Bird-st., Oxford-st., W.
Price, Thos., 24, Wyndham-street, Bryanston-square, W.
SMITH, JOHN & SONS, 18, 23, & 24, St. John's-square, E.C.
Smith & Turner, 50, Bartholomew-close, E.C.
Tilbury, Henry, 54, Upper Marylebone-st., W.
Tilbury, Wm., 14, Cleveland-mews, Cleveland-street, Fitzroy-square, W.

Brass Manufacturers—*continued.*

Try, Thomas, 4, Poland-st., Oxford-st., W.
Turner, Wm. & Son, 18 Poland-st., Oxford-st., W.
Vivian, H. H. & Co., 10, Laurence Pountney-lane, E.C.
Whenmouth, G. C., 36, South-st., Lambeth, S.E.

Brimstone Refiners.

F.—Fleur de Soufre.
G.—Schwefel-Sieder.

Brandram Bros. & Co., 5, Philpot-lane, E.C.
Scott, W. T. & Co., Marsh-gate-lane, Stratford, E.

Bronzists.

F.—Bronzeurs.
G.—Bronzisten.

Abercrombie & Son, 30, 32, & 36, Whitfield-st., W
Battam & Co., 160, New Bond-st., W.
Bendon, Geo. & Co., 36, Ely-place, E.C.
BLUMBERG & CO., 2, Cannon-st., E.C.
Brocot, Achille & Son, 8, Red-lion-square, W.C.
Coalbrookdale Co. Ld., 43, 44, Holborn Viaduct, and 118, Cannon-st., E.C.
Ducher, François, 21, Lisle-st., Leicester-sq., W.
Elkington & Co., 42, Moorgate-st., E.C.
Gay, E., Lamaille & Co., 13, Charterhouse st., E.C.
Hatfield, John Ayres, 20 & 21, Cumberland-st., Middlesex Hospital, W.
Jackson & Graham, 70 to 86, Oxford-st., W.
Keyzor, Ben. & Co., 15, Charterhouse-bldgs., E.C.
Lawson, Peter, 5, Hatton-garden, E.C.
Lazarus, Montague & Co., 536, Oxford-st., W.
Levy, Jos. Solomon & Co., 56, Houndsditch, E.
Oppenheim, Wm., 43, Farringdon-st., E.C.
Osborne & Co., Limited, 11, Great Garden-st., Whitechapel, E.
PERRY & CO., 72, New Bond-st., W.
Phosphor Bronze Co., 87, Sumner-st. & Emerson st., Southwark, S.E.
Richard & Co., 24, Cannon-st., E.C.
Wich, Fredk. & Co., 8 & 10, Great Titchfield-st., W.
Waite, Wm., 12A, Margaret-st., Cavendish-square, W.
Wertheimer, Samson, 154, New Bond-st., W.
Zimmerman & Co., 21, Red-Lion-square, W.C.

Cable Manufacturers.

F.—Cables Télégraphiques.
G.—Kabel-Fabriken.

ELECTRICAL TRADING COMPANY, 2, Victoria-mansions, Westminster, S.W. "Berthoud & Borels" Patent. *See index to advertisers.*
LEVY, ARMAND, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; and 42, Rue de Ruysbroeck, Brussels. Cables and Wires to any specification.
Ramsden, Camm & Co., 72, King William-st., E.C. *See index to advertisers.*

Digitized by Google

Carbon Manufacturers.

F.—Charbons Electriques.

G.—Holzkohlen-Brennereien.

Apps, A., 433, Strand, W.C. *See index to advertisers.*

Electric Light Carbon Co., 133A, Great Suffolk-st., Borough, S.E. Every description of carbons for Electrical purposes. *See index to advertisers.*

ELECTRIC LIGHTING SUPPLY AND FITTING CO., Limited, 1, Victoria-mansions, Westminster, S.W. Manager, W. Bridges Adams. Stores, Dacre-st.; Works, York-st., Westminster, S.W. *See index to advertisers.*

LEVY, ARMAND, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; and 42, Rue de Ruysbroeck, Brussels. Electrical Sundriesman Stock kept of various classes of Carbons, Plates, Rods, Cylinders, for all classes of Electrical and Medical Batteries. Carbons moulded to any sketch.

WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. Pencils, Plates and Cylinders in stock. *See index to advertisers.*

Charcoal Makers and Dealers.

N.—Charbon de bois.

G.—Meiler und Holzkohlen-Händlers.

Animal Charcoal Company, Limited, 11, New Gravel-lane, Shadwell High-st., E.

Batchelor, David, 37 & 38, Mark-lane, E.C.

Day, William, 51, Crown-street, Soho, W.C.

FIRMINGER, THOMAS, Eltham-st., Walworth, S. E.

Howitt, Robt. Thos., 82, Up. Whitcross-st., E.C.

LANCASTER, EDWIN, 27, Rockingham-st., S.E.

LLOYD, F. & CO., Russel-pl., Bermondsey, S.E.

Lockyer, George & Son, 36, Mark-lane, E.C.

Monk, Charles, Marlborough-st., Chelsea, S.W.

Oliver, Samuel, 139, Trafalgar-st., Walworth-road, S.E.

Smith, Geo., 24, Cavendish-street, New North-road, N.

Thomas, Samuel Mardon, 40, Gracechurch-st., E.C.

Torr, Geo. (animal), Buck's-row, Thomas-st., Whitechapel, E.

Wayte, Chas., 571, Old Kent-road, S.E.

Chemical Appliance Manufacturers.

F.—Appareils de Chimie.

G.—Chemische Apparate.

APPS, A., 433, Strand, W.C. *See index to advertisers.*

BASTIN, CHAS., Vauxhall-walk, Lambeth, S.E.

Brayne, E. & Co., Three Mills-lane, Bromley-by-Bow, E.

How, James & Co., 73, Farringdon-st., E.C.

ORME & CO, J. (late M. Jackson & Co.), 65, Barbican, E.C. *See index to advertisers.*

Chemical Glass and Apparatus Manufacturers.

F.—Verrerie de Chimie.

G.—Chemisches Glas.

Bachhoffner, Charles, St. Andrew's-bldgs., E.C.

BECKER & CO., F. E., 34, Maiden-lane, Covent-garden, W.C.

Bibbey, Jas., 12, William's-pl., Sumner-st., S.E.

Brayne, Francis & Co., Three Mills-lane, St. Leonard-street, Bromley, E.

Breffit, Edgar & Co., 83, Upper Thames-st., E.C.

Caplatzi, Antonio, 3, Chenies-street, Bedford-square, W.C.

CETTI, E., 36, Brook-st., Holborn, W.C.; Glass Works, Pratt-st., Lambeth, S.E.

Clayton, George, 42, Red Lion-st., Clerkenwell, E.C.

Clayton, Wm., 12, Bunhill-road, E.C.

Doulton & Co., 28, High-st., Lambeth, S.E.

GRIFFIN, JOHN J. & SONS, 22, Garrick-st., W.C.

Gritton, W. H. & Sons, Holland-st., S.E.

Horne & Thornthwaite, 416, Strand, W.C.

HOUGHTON, G. & SON, 89, High Holborn, W.C.

How, James & Co., 73, Farringdon-st., E.C.

India Rubber, Gutta Percha & Telegraph Works Company, Limited, 106, Cannon-st., E.C.

Johnson, Matthey & Co., Hatton-garden, E.C.

Mace & Haldane, 77 & 78, Milton-st., Cripplegate, E.C.

MALING, C. T., 20, Bartlett's-buildings, E.C. *See index to advertisers.*

May, Roberts & Co., 9, Clerkenwell-road, E.C.

Murray & Heath, 69, Jermyn-st., S.W.

Oakley, Walter Henry & Co., 202, Grange-rd., S.E.

ORME & CO., J. (late M. Jackson & Co.) 65, Barbican, E.C. *See index to advertisers.*

Poths, H. & Co., 4, Sugarloaf-court, Leadenhall-st., E.C.

Powell, Samuel, 57, Newcomen-st., Borough, S.E.

Rouch, William, White & Co., 180, Strand, and 43, Norfolk-st., Strand, W.C.

Ruels & Co., 28, Goldhawk-road, Shepherd's-bush, W.

Science Co-operative Supply, 122, Charlotte-st., Fitzroy-square, W.

Shea, John, 184, Cator-st., Peckham, S.E.

Smith, Thomas & Co., Verney-road, Old Kent-road, S.E.

Stiff, James & Sons, High-st., Lambeth, S.E. Retorts, receivers, store jars, plumbago and clay crucibles, porous cells, cylinders, plates, stoneware, insulators, and all other pottery for Electric and Telegraph work. Prize Medal, Paris Electrical Exhibition, 1881. *See index to advertisers.*

Townson & Mercer, 89, Bishopsgate-st.-within, E.C.

WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. All kinds of work done. *See index to advertisers.*

Digitized by Google

Chemists—Analytical.

F.—Chimistes Analytiques.
G.—Analytikeren.

Attfield, Professor John, F.R.S., 17, Bloomsbury-square, W.C.
Bamber, Hy. K., 5, Westminster-chambers, S.W.
BANNISTER, RICHARD, The Laboratory, Somerset-house, W.C.
Barrett, Edwd. Louis, 7, Union-court, Old Broad-st., E. C.
Batchelor, David, 37 & 38, Mark-lane, E.C.
Bedford, Christopher, 6, St. Swithin's-lane, E.C.
Bischof, Gustav., 4, Hart-st., Bloomsbury, W.C.
Burgoyne, Burbidges, Cyriax & Farries, 16, Coleman-st, E.C.
Cameron, Jas., 30, Romily-rd., Finsbury-pk., N.
CAMERON, M. J., 52, Lime-st., E.C.
Carpenter, H. S., Holborn-viaduct, E.C.
Church, Arthur Herbert, M.A., F.C.S., 79, Great Tower-st., E.C.
Claudet, Frederic, 6 & 7, Coleman-st., E.C.
Cleaver, Edward Lawrance, 289A, King's-road, Chelsea, S. W.
Cole, Granville, PH.D., F.I.C., 17, Gracechurch-st., E.C.
Cooper, W. John, 7, Westminster-chambers, S.W.
Cownley, Alf. John, F.I.C., F.C.S., 13, Fenchurch-avenue, E.C.
Cripps, Joseph, 27, New Broad-st., E.C.
Cross, Chas. Samuel, 606, Old Ford-road, Bow, E.
Duprè, Auguste, PH.D., F.R.S., F.C.S., 17, Pembroke-gardens, Kensington, W.
Dyer, Bernard, F.C.S., F.I.C., 17, Great Tower-st., E.C.
Evans & Jones, 106, Leadenhall-st., E.C.
Foster, Professor Wm., M.A., F.C.S., &c., Middlesex Hospital, Berners-st., W.
Gardner, Edward Vincent, 44, Berners-st., W.
Goldenberg, L., 57, Hatton-garden, E.C. Experimental & Technological Laboratories, &c.
Halse, Wm. Edward, 21, Mincing-lane, E.C.
HARKNESS, WM., Laboratory, Somerset-house, W.C.
Harland, R. H., 79, Great Tower-st., E.C.
Harris, Hy. Penley, F.C.S., 14, Buckingham Palace-road, S.W.
Hehner, Otto, 11, Billiter-square, E.C.
Heisch, Charles, 79, Mark-lane, E. C.
Hobbs, Hubert Lancaster, 11, Billiter-square, E.C.
HOBSON, A. H., F.R.M.S., 17, Regent-st., S.W.
Hughes, George, 79, Mark-lane, E.C.
Hughes, John, F.C.S., 79, Mark-lane, E.C.
Jackson, Edgar, 106, Queen Victoria-st., E.C.
Johnson & Sons, Limited, 23, Cross-st., Finsbury, E.C.
Johnson, Matthey & Co., Hatton-garden, E.C.
Kingzett, Chas. T., F.I.C., F.C.S., 2, Letchford's-buildings, Three Colt-lane, E.
London & General Water Purifying Company, 157, Strand, W.C.
Mackey, Mackey & Co., 1 & 2, Bouverie-st., E.C.
Manning, Fredk. Alfred, 18, Billiter-st., E.C.
Muter, Dr. Jn., F.C.S., 325, Kennington-rd., S.E.
Neison & Bayne, 173, Fenchurch-st., E.C.
Nesbitt, J. C. & Son, 38, Gracechurch-st., E.C.

Chemists—Analytical—*continued.*

Newlands, John, 9, Mincing-lane, E.C.
Nickels, Benjamin, F.C.S., F.I.C., 104, Leadenhall-st., E.C.
Ogston, Geo. Hy., 22, Mincing-lane, E.C.
Ord, Thos. Roberts, 52, Lime-st., E.C.
Paul, Benjamin Horatio, 1, Victoria-st., Westminster Abbey, S.W.
Price, Astley P., 47, Lincoln's Inn Fields, W.C.
Price, Dr. David S., 26, Great George-st., S.W.
Redwood, Boverton, F.C.S., 85, Gracechurch-st., E.C.
Redwood, Dr. Theeph., 17, Bloomsbury-sq., W.C.
Riley, Edward, 2, City-road, E.C.
Savory & Moore, 143, New Bond-st., W.
Sibson, Alfred, F.C.S., 23, St. Mary Axe, E.C.
South London Central Public Laboratory, 161, Lower-Kennington-lane, S.E.
Soward, Alfred Walter, 5, Sergeant's Inn, E.C.
Spencer, Thos., 32, Euston-square, N.W.
SQUIRE, PETER & PETER W., 413, Oxford-st., W.
STOKER, GEO. NAYLOR, The Laboratory, Somerset-house, W.C.
Symons, Wm. Hy., F.R.M.S., F.C.S., 2, Queen's-terrace, St. John's Wood, N. W.
Teed, Frank L., 8, Victoria-chambers, S.W.
Teschemacher & Smith, Commercial Sale Rooms, Mincing-lane, E.C.
Voelker, Augustus, PH.D., F.R.S., 11, Salisbury-square, E.C.
Wanklyn, James Alfred, 7, Westminster-chambers, S.W.
Wigner & Harland, F.C.S., F.I.C., 79, Great Tower-st., E.C.
Wood, Chas. Henry, 7, Union-court, Old Broad-st., E.C.
Young, W. Chas., F.C.S., F.I.C., 117, Poplar High-st., E.

Chemists—Manufacturing and Metallurgical.

F.—Chimistes Industriels et Métallurgiques.
G.—Chemische-Fabriken.

Allen, F. & Sons, 164 Upper North-st., Poplar, E.
Apothecaries' Hall, Water-lane, Blackfriars, E.C.
Beckles, S. H. & Co., 6, Lime-st., E.C.
Burroughs, Wellcome & Co., 7, Snow-hill, E.C.
Forster & Gregory, Greyhound-lane, Streatham-common, S.W.
Johnson, Matthey & Co., Hatton-garden, E.C.
Orr, J, B., 46, Cannon-st., E.C.
South Down Metal & Chemical Co., Limited, 8, Old Jewry, E.C.
Townson & Mercer, 89, Bishopsgate-st., Within, E.C.

Chronometer Makers.

F.—Chronomètres.
G.—Chronometer-Macher.

Audemars, Louis, 39, Great Russell-st., Bloomsbury, W.C.
Barraud & Lunds', 41, Cornhill, E.C.
Barwise, John, 40, St. James-st., S.W.
Bennett, Sir John, 64, Cheapside, E.C.

Digitized by Google

Chronometer Makers—*continued.*

Benson, J. W., 62, Ludgate-hill, E.C.
Birchall, Peter, 12A, Stonefield-st., Islington, N.
BISHOPP, JAMES, 20, Bunhill-row, E.C.
Brock, James, 64, George-street, Portman-sq., W.
Brockbank & Atkins, 6, Cowper's-court, Cornhill, E.C.
Bryer, John, 53 & 54, Barbican, E.C.
Buckney, Daniel, 11, Southampton-row, Holborn, W.C.
Carter, John & Son, 61, Cornhill, E.C.
Carter, Wm. Edward, 38, Cheapside, E.C.
Christie, Wm., 129, Cannon-st., E.C.
Clerke, Fredk. Wm., 1, Royal Exchange, E.C.
Cogdon, Thos. Samuel & Son, 28, Bridge-row, E.C.
Connell, Wm. George, 83, Cheapside, E.C.
Crisp, Wm. Baker, 174, St. John-st.-rd., E.C.
Dando, Thos., 128, Shepherdess-walk, N.
Delolme, Henry, 48, Rathbone-place, Oxford-street, W.
Dent, M. F., 33 & 34, Cockspur-st., Charing-cross, S.W.
Dent, E. & Co., 61, Strand, W.C.
Evans, John, 89, Mount-st., Berkeley-sq., W.
French, William, 2, Dowgate-hill, E.C.
Frodsham, C., 84, Strand, W.C.
Frodsham, Geo. Edwrd., 31, Gracechurch-st., E.C.
Frodsham, Geo. Wm., 4, Change-alley, E.C.
Goldsmiths' Alliance, Limited, 11 & 12, Cornhill, E.C.
Gowland & Read, 52, London-wall, E.C.
Walker, John, 77, Cornhill, E.C.

Clock Wheel Makers.

F.—Roues d'horologerie.
G.—Uhrräder-Fabriken.

Beard, John, 28, Corporation-row, Clerkenwell, E.C.
Lockwood, Miss Maria, 13, Myddelton-st., E.C.
SMITH, J. & SONS, 18, St. John's-square, Clerkenwell, E.C.

Compass Cap Makers.

F.—Pivots de Broussoles.
G.—

APPS, A., 433, Strand, W.C. *See index to advertisers.*
Smith, Y., 59, White Horse-st, Commercial-road, E.

Compass Cap Centre Maker.

F.—
G.—

HOLDSWORTH, SAMUEL, 54, Spencer-st, Clerkenwell, E.C.

Composition Makers—for Preventing Incrustation in Steam Boilers.

F.—Désincrustants.
G.—Composition zur Verhütung des Incrustirens der Dampfkessel.

Acme Cement Co., 25, Old Jewry, E.C., & 154A, Ormside-st., S.E.
BARR, ROBERT, Agent for OLDFIELD & WALTON, East India Dock, E. *See index to advertisers.*
Barton, Geo. & Co., 12, Douglas-st., Deptford, S.E.
Cartledge, Arthur, 37 & 38, Mark-lane, E.C.
Dade, D. H. & Co., New Church-street, Jamaica-road, Bermondsey, S.E.
Evans, J. A., 17, Silver-st., Falcon-sq., E.C.
Franklyn, H. & Co., 72, Gedling-street, Dock-head, S.E.
Gayler, Thomas & Co., 161, Dalston-lane, E.
Harris, James, 104, Queen Victoria-st., E.C.
Harrison, Edwin, 17, Fenchurch-st., E.C.
Hatfull, Robert, 23A, Union-st., Deptford, S.E.
Hubbuck, T. & Son, 24, Lime-st., E.C.
Jones, Frederick & Co., Perron-st., Ryland-rd., Kentish-town, N.W.
LEABON & CORFE, Bridge-st. and Plough-lane, Homerton, E.
Légé, Annibal & Co., Turnmill-st., E.C.
Leroy, F. & Co., Gray-st., Commercial-road, E.
London Chemical Co., Bow-bridge Wharf, E.
Noble, James, 883, Old Kent-road, S.E.
Payne & Co., 37, Eastcheap, E.C.
Pittam, John & Co., Augusta Oil Mills, Poplar, E.
Poupard, Chas. Geo., 271, Romford-road, Stratford, E.
Riley's Anti-Incrustation Boiler Composition Co., 17, Silver-st., Falcon-square, E.C.
Rago & Rocket, Proprietors (The), 106, Fenchurch-st., E.C.
Ross, Wm., Horseshoe Iron Wharf, Old Kent-road, S.E.
Ruffles & Butcher, 6, Wormwood-st., Old Broad-st., E.C.
Schleicher, Otto, Warton-rd., Stratford, E.
Sharer, T., 17, Gracechurch-st., E.C.
Skudder, G. & Co., Thoburn-sq., Bermondsey, S.E.
Smith, Spencer, 204, High Holborn, W.C.
Spence, John B. & Co., 31, Lombard-st., E.C.
White, Jas., 28, Stepney-green, E.
Woodfield, Frank & Co., 106, Fenchurch-st., E.C., & Morrison's-bldgs., Commercial-road East, E.

Copper Companies and Merchants.

F.—Cuivre (Compagnies de).
G.—Kupfergieserei und Händlers.

BROUGHTON COPPER CO., LIMITED, 122, Cannon-st., E.C.
Budd, Edward, Bond-court-house, Walbrook, E.C.
Burt, J. H. & Co., 1A, Laurence Pountney-hill, E.C.
Cape Copper Mining Co., Limited, 6, Queen-st.-place, E.C.

Digitized by Google

Copper Companies & Merchts.—*continued.*

Corry, Edward, 9, New Broad-st., E.C.
Edwards, Geo. A., 15, Devonshire-st., E.
English & Australian Copper Co., Limited, 6, Gracechurch-street, E.C.
Grenfell, P. & Sons, 27, Upper Thames-st., E.C.
Harford & Bristol Brass Co., Golden Heart-wharf, Dowgate, E.C.
Harrison, Geo., 20, Drury-lane, W.C.
Hills, Frank Clark, 17, Philpot-lane, E.C.
Hungarian Copper Co., Limited, 5, Copthall-buildings, Throgmorton-st., E.C.
Jackson, Wm. & Sons, 17, Sun-st., Finsbury, E.C.
Lake Superior Native Copper Co., 1A, Abchurch-yard, E.C.
Lambert, Chas. & Co., 1, Crosby-square, E.C.
Nevill, Druce & Co., 13, Sherborne-lane, E.C.
Norton, Wm. & Co., 190, Gresham-house, E.C.
NORWAY COPPER MINES CO., LIMITED, 52, Gracechurch-st., E.C.
Panulcillo Copper Co., Limited, 23, Great St. Helen's, E.C.
Pontifex (E. & W.) & J. Wood, Shoe-lane, E.C.
Schwann & Co., 6, Moorgate-st., E.C.
Shears, James & Sons, 27, Bankside, S.E.
Smith, J. & Son, 18, 23 & 24, St. John's-sq., E.C.
Tharsis Sulphur & Copper Co., 9, Mincing-lane, E.C.
Vivian, H. H. & Co., 10, Laurence Pountney-lane, E.C.
Vivian & Sons, Limehouse-hole, Emmett-st., E.
Williams, Foster & Co., 57, Gracechurch-st., E.C.
Young, Dowson & Co., 9, Fenchurch-st., E.C.

Coppersmiths & Braziers.

F.—Fondeurs en Cuivre et Bronze.
G.—Kupferschmiede und Gürtler.

Beck & Co., Limited, 130, Gt. Suffolk-st., S.E.
Benham & Froud, 40, Chandos-st., Strand, W.C.
Blundell Bros., 23 & 25, West India Dock-rd., E.
Boaz, George, 103, West Ferry-road, E.
Brockley, George, East Ferry-road, Poplar, E.
Coster, George Alex., 21, Old Gravel-lane, High-street, Wapping, E.
Dore, John, & Co., 36, High-street, Bromley, E.
Downs, Charles, & Co., 93, Southwark-bridge-road, S.E.
Downton, J., & Co., 71, West India Dock-rd., E.
Forbes, D. W., & Co., New-road, Blackwall, E.
Harker, John Wm., 187, Upper Thames-st., E.C.
Hay, Geo., 6, St. John's-lane, Clerkenwell, E.C.
Hendry, Geo., & Co., Oak-lane, Limehouse, E.
Humphrey Bros., 38, St. John-st.-road, E.C.
Kirkaldy, John, 40, West India Dock-road, E.
Lang, George, & Sons, 46, Gerrard-st., Soho, W.
LEALE, ANDREAS FRANZ, 19 & 21, Westminster-bridge-road, S.E.
Low & Duff, 15, Devonshire-street, E.
M'Glashan, A. & Co., 10 & 11, Coal-yard, Drury-lane, W.C.
Manlove, Alliott, Fryer, & Co., 50, Queen Victoria-street, E.C.

Coppersmiths & Braziers—*continued.*

Merryweather & Sons, Greenwich-road, S.E.
Noakes, Thos., & Son, 195 & 196, Brick-lane, E.
Oliver, Geo. & Joseph, 37, 38, & 39, Wapping-wall, E.
Owen, Saml., & Co., 22, Whitefriars-st., E.C.
Pontifex, E. & W., & Wood, J., Farringdon Works, Shoe-lane, E.C.
Pontifex (Russell) & Co., 14, Upper St. Martin's-lane, W.C.
Redpath & Paris, Church-row, Limehouse, E.
Ridsdale & Co., 54, 55, & 56, Minories, E.
Rowe, John, 28A, Rhodeswell-road, E.
Rundell, Son, & Co., 53 to 57, High-st., Poplar, E.
Shears, James, & Sons, 27, Bankside, S.E.
Smith, Thos., 59, White Horse-street, Commercial-road-east, E.
Smith & Matthews, 3, Little Compton-st., Soho, W.
Starnes, J. S., & Sons, 13, Broad-st., Ratcliff, E.
Stewart, J., & Son, Blackwall Iron Works, Isle of Dogs, E.
Suffield, Wm., & Co., Bridge-road, Millwall, E.
Thomson, Andrew & John, 4, Plaistow-road, Victoria Docks, E.
Thornton, Chas., 1, Upper Charles-street, Goswell-road, E.C.
Tyler (Hayward) & Co., 84 & 85, Upper Whitecross-st., E.C.
Vivian & Sons, Bond-court House, 3, Bond-court, Walbrook, E.C.
Warner, John, & Sons, Crescent Foundry, 27, Jewin-crescent, Cripplegate, E.C.
Wilson & Blessley, 1, Paul-st., Finsbury, E.C.

Copperas Manufacturers.

F.—Couperose (Fab. de.).
G.—Eisenvitriol.

Roding Chemical Co., 12, Lime-st., E.C.

Cotton Waste Merchants.

F.—Déchets de Coton.
G.—Putzlappen-Händler.

Back, Usher, 77, Blackfriars-road, S.E.
Bramham, Wm., & Co., 82, Bow-road, E.
Cowdy, Jermh., & Co., 40A, Queen-st., Cannon-st., E.C.
Craig & Rose, 75, Southwark-st., S.E.
DEFRIES, J. & SONS, 147, Houndsditch, E.
See index to advertisers.
Dix, George W., 10, Crosby Hall Chambers, E.C.
Fisher, Hugh, D. & Co., 110, Cannon-st., E.C.
Franklin, Henry & Co., 72 to 78, Gedling-st., Dockhead, S.E.
Howes Bros., 30, Tabernacle-walk, E.C.
Jennings, John, 1, Guildhall-chambers, E.C.
MORGAN & SON, 217, Blackfriars-rd., S.E.
See index to advertisers.
Pittam, John & Co., 82, Augusta-st., East India Dock-rd., E.

Digitized by Google

Cotton Waste Merchants—*continued.*

Poupard, Chas. Geo., 271, Romford-rd., Stratford, E.

ROSE, SIR W.A., & Co., 66, Upper Thames-st., E.C.

Ruffles & Butcher, 6, Wormwood-st., E.C.

Schelman & Son, Sheppy-yd., Minories, E.

Smart, Arthur & Co., 70 & 71, Bishopsgate-st. Within, E.C.

Tonkin, E. N. & Co., 172, Stamford-st., S.E.

Watson, Benj., 13, Charles-st., Blackfriars, S.E.

Wright, J. & E., 7, Leadenhall-st., E.C.

Covered Wire Manufacturers.

F.—Fils Isolés (Fab. de).

G.—Umspommener Draht.

Apps, A., 433, Strand, W.C. *See index to advertisers.*

ELECTRICAL TRADING CO., 2, Victoria-mansions, Westminster, S.W. Berthond-Borel patent covered wire. *See index to advertisers.*

FELTEN & GUILLEAUME (W. F. Dennis & Co., Agents), 101, Leadenhall-st., E.C. *See index to advertisers.*

Harburg & Vienna Rubber Co. (The), Tower-Chambers, London-wall, E.C. *See index to advertisers.*

HENLEY'S (W. T.) TELEGRAPH WORKS CO., Limited, 8, Drapers'-gardens, E.C. *See index to advertisers.*

India Rubber, Gutta Percha, & Telegraph Works Co., Limited, 106, Cannon-st., E.C.

LEVY, ARMAND, Electrical Sundriesman, India Rubber, Gutta Percha, Composition, and Lead Covered Cables, Silk, Cotton, Celluloid Covered Wires, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; and 42, Rue de Ruysbroeck, Brussels.

LONDON (THE) ELECTRIC WIRE CO., Wenlock-buildings, Ironmonger-row, E.C. Manufacturers of Covered Wires of all descriptions for Electrical Instruments, Dynamo Machines, Bell and House Work, &c. Fancy paraffined wires specially prepared for telephone and other indoor connections. *See index to advertisers.*

MAX, SABEL, 2, Coleman-st.-buildings, E.C.

ORMISTON & CO., 25 & 27, Old-st., St. Luke's, E.C. *See index to advertisers.*

PHILLIPS BROS., Macintosh-lane, Homerton, E., & Lea Telegraph Works, Hackney Wick, E. *See index to advertisers.*

REID BROS., 12, Wharf-road, N. *See index to advertisers.*

RICKARD, WM., Ashbourne-road Mills, Derby (Ed. Holloway, Agent). *See index to advertisers.*

Smith, F. & Co., 11, Aldermanbury, E.C.

WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Domestic Electricians.

F.—Electricité Domestique.

G.—Haus-Telegraphen.

BRYDEN, JOHN & SONS, 2, Bulstrode-st. (corner of Welbeck-st.), Cavendish-square, W., and at 16, Frederick-st., Edinburgh, 24, Renfield-st., Glasgow, 7, Princes-st., Perth, Commercial-st., Dundee. Established 1809. *See index to advertisers.*

BURLEY, WM., Tower Chambers, London Wall, E.C. Electric Bells, Burglar Alarms, and Safety Alarm Bolts. Experienced Fitters sent to all parts. Proprietor of Young's Patent Cord Holdfast for Venetian Blinds and Patent Simplex Ratchet Muslin Blind Tightner.

CUTTING, R. C. & CO., Wordrobe Chambers, Queen Victoria-st., E.C. *See index to advertisers.*

ELECTRIC LIGHTING AND GENERAL AGENCY CO. (Manager, J. Glow), Crown Building, 79, Queen-st., E.C. *See index to advertisers.*

Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton Garden, E.C., and Lawford-road, N.W.

India Rubber, Gutta Percha and Telegraph Works Co., Limited, 106, Cannon-st., E.C.

Medland, J. B., 12, Borough, London-bridge, S.E.

Webb & Son, 11, Leadenhall-st., E.C.

Werdermann, R., 13, Princes-st., Cavendish-square, W.

Woodhouse & Rawson, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Drain Pipe (Stone-ware) Manufacturers.

F.—Tuyaux en Poterie (Fab. de).

G.—Tonröhren Fabriken.

Addington & Albany Works, Addington-sq., Camberwell, S.E.

Ashton & Green, Ld., 11, 12, 14 & 15, Bury-st., St. Mary Axe, E.C.

Baily & Co., Pottery, Fulham, S.W.

Barralet, Henry, 74, Paul-st., Finsbury, E.C.

BASTIN, C., 154, Vauxhall-walk, S.E. *See index to advertisers.*

Beart's Patent Brick Co., No. 1 Wharf, Gt. Northern Goods Station, York-road, N.

Blashfield, Jas. Ritchie, 1, Wharf, Praed-st., W.

Blount, W. & Co., Kinson Wharf, Albert Embankment, S.E.

Bracknell Pottery Brick & Tile Co., Bourne Valley Wharf, Nine Elms, S.W.

Cliff, Joseph & Sons, 2 & 4, Wharf, Great Northern Goods Station, King's Cross, N.

Coles, Shadbolt & Baynes, Thornhill Wharf, 123, Caledonian-rd., N.

Cooper & Farra, 47 & 48, King William-st., E.C.

Davey & Moore, Albion-st., Caledonian-rd., N.

Doulton & Co., 28, High-st., Lambeth, S.E., & at Grove-rd., Mile End-rd., E.

Digitized by Google

Drain Pipe (Stone-ware) Manfs. *continued.*

Great Western Pottery & Brick Works (Candy & Co., Limited) 417-420, Mansion House-chambers at (Brown, Stevenson & Co.).
Hawkins, S. & Sons, Stroud-green-rd., Finsbury-park, N.
Hodges, Butler & Dale, Blackwall-lane, East Greenwich, S.E.
JENNINGS, GEO., Palace Wharf, 67, Lambeth Palace-road, S.E.
Johnston, Henry & Co., 185, Cannon-st.-rd., E.
Knowles, J. & Co., St. Pancras Goods Station, N.W.
Lewis, Williams & Co., 354, Upper-st., N.
Maw, Jas., Harrow Building Wharf, High-st., Stratford, E.
Millichamp, Henry & Co., 98, Bermondsey-wall, S.E.
Morton, A. Sidney, 101, Leadenhall-st., E.C.
Parry, Wm., Copperas-lane, Deptford, S.E.
Peake, Thos., Islington Wharf, 38, Graham-st., N.
Plas-yu-Wern Fire Clay Co., 28, Martin's-lane, E.C.
Silkstone Brick Co., Finchley-road Station, Midland Railway, N.W.
Skey, Geo. & Co., 42, Berners-st., W.
Smith, Thos. & Co., Verney-road, Old Kent-road, S.E.
STIFF, JAMES & SONS, London Pottery, Lambeth, S.E. (Established 1751.) *See index to advertisers.*
Stroud, Jas. & Alfred, Beauvoir Wharf, Kingsland Basin, E.
Tribe & Co., Roland Wharf, 71, Lot's-road, King's-road, S.W.
Underhill & Co., 170-173, Upper Thames-st., E.C.
White, Wm. Jas. & Co., L. & N. W. Railway, Worship-st., E.C.
Williams & Fergusen, 10, South Wharf, Paddington Basin, W.
Wragg, Thos. & Sons, 10, Beaufort-buildings, Strand, W.C.

Draughtsmen.

F.—Dessinateurs.
G.—Zeichner.

Allison Bros., 41, Southampton-buildings, W.C.
DE NEGRI CONSTANTINE, 68, Stamford-st., Blackfriars-road, S.E.
DUNCAN BROTHERS, 32, Queen Victoria-st., E.C. Mechanical Draughtsmen. *See index to advertisers.*
Freeman, G. S., 5, Victoria-st., Westminster, S.W.
Gardner, J., 134, Fenchurch-st., E.C.
Harwar, W., 11, Cursitor-st., Chancery-lane, E.C.
Jewitt, Keates & Reynolds, 20, Clifton-villas, Camden-square, N.W.
LONDON DRAWING OFFICE, 98, London Wall, E.C.
Messer & Thorpe, 8, Quality-court, Chancery-lane, W.C.
SILVESTER, H. S., 9, Adam-st., W.C.

Driving Band Makers—Cotton.

F.—Courroies (Cotton) de Transmission.
G.—Maschinenriemen-Zeug.

Anderson, Abbott & Anderson, 37, Queen Victoria-st., E.C.
Gandy, Maurice, Queen Victoria-st., E.C.
Gibb, James & Co., 23, St. Mary Axe, E.C.
India Rubber, Gutta Percha & Telegraph Works Company, Limited, 106, Cannon-st., E.C.
Kenyon, W. & Sons, 86, Queen-st., Cheapside, E.C. Cotton Driving Rope.
SHEATH BROS., 89, City-road, N. *See index to advertisers.*

Driving Band Makers—India Rubber.

F.—Courroies de transmission—Caoutchouc.
G.—Maschinenriemen—Indiarubber.

Ancoats Vale Rubber Company, Limited, 13, Bow-lane, E.C.
Anderson, Abbott & Anderson, 37, Queen Victoria-st., E.C.
Hutchinson, A. & Co., 3, Great Winchester-st., E.C.
India Rubber, Gutta Percha & Telegraph Works Company, Limited, 106, Cannon-st, E.C.
NORTH BRITISH RUBBER COMPANY, LIMITED, 57, Moorgate-st, E.C.
SHEATH BROS., 89, City-road, E.C. *See index to advertisers.*

Driving Band Makers—Leather.

F.—Courroies de transmission—Cuir.
G.—Machinenriemen—Leder.

Adams & Wood, 132, Upper Thames-st, E.C.
Angell & Co., 36, Russell-st, Bermondsey, S.E.
Angus, G. & Co., 187, Upper Thames-st, E.C.
BARR, ROBT., Agent for Oldfield & Walton, East India Dock, E. Patent Link Leather Belting Makers. *See index to advertisers.*
Binney & Son, Catherine-st., City-road, E.C.; West Howard, Glasgow; Broad-st., Birmingham; and Wellington-st., Leeds. *See index to advertisers.*
BOYCE, C. J. &. CO., 32, St. Mary Axe, E.C.
Bull, E., 89, Shoreditch High-st., E.
Burt, J. & Co., 70 & 71, Bishopsgate-st. Within, E.C.
Carpenter Bros., 44, Wellington-st., S.E.
Clarke, J., 16, Major-road, S.E.
Cobbett, W. W., 60, Queen Victoria-st., E.C.
Corcoran, Bryan, 31, Mark-lane, E.C.
Corcoran, Witt & Co., 30, Mark-lane, E.C.
Duncan Bros., 32, Queen Victoria-st, E.C. *See index to advertisers.*
Edwards, C. J. & Son, 32, Great Sutton-st., Clerkenwell, E.C.
Farr, Richard, 312, King's-road, Chelsea, S.W.
Franklin, H. & Co., 78, Gedling-st., Dockhead, S.E.

Digitized by Google

Driving Band Mak.—Leather—*continued.*

French, J. & Co., 71 & 73, Commercial-st., E.
Gandy, M., 130, Queen Victoria-st., E.C.
Gibb, James & Co., 23, St. Mary Axe, E.C.
Golding, Bexfield & Co., 1, Lavers-road, Stoke Newington, N.
Harbord, Henry, Millstream-road, Dockhead, S.E.
Henderson, H. & Sons, 63, Bishopsgate-st. Within, E.C.
HEPBURN & GALE, 239, Long-lane, Southwark, S.E. *See index to advertisers.*
Holgate & Co., 33, Gt. Dover-st., S.E.
Hughes, J. & Sons, 217, Great Dover-st., S.E.
India Rubber, Gutta Percha & Telegraph Works Company, Limited, 106, Cannon-st., E.C.
Jamaiker Bros., 54, Church-st., Minories, E.
Matthews, Thos., 150, High-st., Camden-town, N.W.
McIntosh, P. & Sons, 23, St. Mary Axe, E.C.
Morgan, Robert & Son, 213 & 217, Blackfriars-road, S.E.
NOBES, HOMAN & HUNT, 75, Rockingham-st, Newington-causeway, S.E. *See index to advertisers.*
Norris, T. E. & Co., 56, 57 & 58, High-st., Shadwell, E.
OAKES, J. C. R., 39, QUEEN VICTORIA ST., E.C. THE "VICTORIA" LEATHER BELTING FLEXIBLE, STRONG, AND OF EVEN QUALITY. WROUGHT IRON PULLEYS, &c.
Ormerod, O. & W., 70 & 71, Bishopsgate-st. Within, E.C.
Potier, Wm. & Son, 33, Green-st., Wellington-st., Blackfriars-road, S.E.
Preller's Leather Co., 57, Lant-st., S.E.
SELIG, SONNENTHAL & CO., 85, Queen Victoria-st., E.C. Pure White Oak Tanned. *See index to advertisers.*
SHEATH BROS., 89, City-road, E.C. *See index to advertisers.*
Tuck & Co., Limited, 116, Cannon-st., E.C.
Tullis, John & Son, 110, Cannon-st., E.C.
Tullis, Thomas L. & Co., 5, New London-st., E.C. (Wm. Reid & Co. agents).
Watson, Benj., 13, Charles-st., Blackfriars, S.E.
Webb & Son, 11, Leadenhall-st., E.C.
White, John H. & Co., 12, Burdett-road, E.
Whitehead, R. R. & Bros., 10, Endell-st., W.C.
Whiteley, Joshua, 2, King William-st., E.C. (J. Abercrombie agent).
Wild, Augustus & Co., 51, Gt. Dover-st., S.E.
Willcox, W. H. & Co., 36, Southwark-st., S.E.
Witty & Wyatt, Billiter House, Billiter-st., E.C. *See index to advertisers.*

Dynamo Machines for Electric Lighting (Manufacturers of).

F.—Machines dynamo pour éclairage électriques.
G.—Dynamo-Maschinen für electrisches Licht.

METROPOLITAN (BRUSH) ELECTRIC LIGHT & POWER COMPANY, LIMITED, 110, Cannon-st., E.C.

Dynamo Magneto and Electric Machine Manufacturers.

F.—Machines dynamo et magneto électriques.
G.—Dynamo-Maschinen.

APPS, A., 433, Strand, W.C. *See index to advertisers.*
ANGLO-AMERICAN (BRUSH) ELECTRIC LIGHT CORPORATION, LIMITED, 108, Belvedere-road, Lambeth, S.E. (Brush system.) *See index to advertisers.*
BERLY, J. A., C.E., A.S.T.E., &c., 16, New Bridge-st., E.C. Agent for Gramme Patent. *See index to advertisers.*
BINSWANGER, G., & CO., 33, Aldermanbury, E.C.
BRITISH ELECTRIC LIGHT COMPANY, LIMITED, Heddon-street, Regent-street, W. (Gramme Machines, Brockie Arc Lamps, and "British" Incandescent Lamps.) *See index to advertisers.*
CLARK (L.) MUIRHEAD & CO., 23, Regency-st., Westminster, S.W. (Lontin system.)
CROMPTON, R. E. & CO., 4, Queen Victoria-street, E.C. (Bürgin system.) *See index to advertisers.*
Duplex Electric Light, Power, and Storage Co., Limited, 9, Soho-square, W. *See index to advertisers.*
ELECTRIC (THE) LIGHTING SUPPLY AND FITTING COMPANY, 1, Victoria Mansions, Victoria-st., Westminster, S.W. *See index to advertisers.*
ELECTROLYTIC CO. (THE), Charlotte-street, Blackfriars, S.E. *See index to advertisers.*
Electric Light and Power Generator Company, Limited, 47, Cannon-st., E.C.
ELECTRICAL TRADING COMPANY, 2, Victoria Mansions, Westminster, S.W. *See index to advertisers.*
ELPHINSTONE - VINCENT DYNAMO ELECTRIC MACHINE, 192, Gracechurch-street, E.C.
Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton Garden, E.C., and Lawford-road, N.W.
India Rubber, Gutta Percha, and Telegraph Works Company, Limited, 106, Cannon-street, E.C.
LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; Paris & 42, Rue de Ruysbroeck, Brussels. Importers of Foreign Manufactures.
METROPOLITAN (BRUSH) ELECTRIC LIGHT AND POWER COMPANY, LD., 110, Cannon-street, E.C.
PATERSON & COOPER, 76, Little Britain, E.C. *See index to advertisers.*
Reid Bros., 12, Wharf-road, City-road, N. *See index to advertisers.*
Schoth, G. A., 232, Euston-road, N.W.
Siemens Bros. & Co., Limited, 12, Queen Anne's-gate, Westminster, S.W. (Siemens' continuous and alternating systems.)
Wailes, George & Co., 258, Euston-road, N.W.
Woodhouse & Rawson, 11, Queen Victoria-st., S. E. *See index to advertisers.*

Digitized by Google

Earthenware Telegraphic Appliances.

F.—Porcelaine pour usages télégraphiques.
G.—Porzellan-Manufactur für Telegraphen.

DOULTON & CO. (late Pinder, Browne & Co.), Waltham-buildings, Holborn Circus, E.C. Works—Burslem, Staffordshire. Manufacturers of Insulators, Battery Jars, Plates, Porous Cells, & all Telegraphic & Electric Appliances in Earthenware.

Ebonite Manufacturers.

F.—Ebonite (Fab. d').
G.—Ebonite-Fabrikanten.

Applegarth, R., & Denayrouze, A., 10, Mansion-house-chambers, 11, Queen Victoria-st., E.C. *See index to advertisers.*
BINSWANGER, G. & CO., 33, Aldermanbury, E.C.
Britannia Rubber & Kamptulicon Company, 32, Cannon-st., E.C.
Davis & Timmins, Bowling-green-lane, Farringdon-road, E.C. *See index to advertisers.*
HARBURG INDIA RUBBER COMB CO., 138, London Wall, E.C. *See index to advertisers.*
India Rubber, Gutta Percha & Telegraph Works Company, Limited, 106, Cannon-st., E.C.
LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; Paris & 42, Rue de Ruysbroeck, Brussels. Sheet Rod Tube, & any class of Mouldings, Telephone Cases, &c.
New York Hamburg India Rubber Company (The) (John Sangster), 8, Coleman-st., E.C.
Sheath Bros., 89, City-road. *See index to advertisers.*
WINTER, F. 138, London Wall, E.C. *See index to advertisers.*
Woodhouse & Rawson, 11, Queen Victoria-st, E.C. Sheet & Rod in stock. *See index to advertisers.*

Electric, Alarms—Burglars, Fire, Safes, Ships, Trains, &c.

F.—Avertisseurs électriques, voleurs, feu, &c.
G.—Electrische Allarm-Apparate.

Apps, A., 433, Strand, W.C. *See index to advertisers.*
Archbutt, J. & W. E., 8, Bridge-st., Westminster, S.W.
Berry, F. H., 8, Percival-st., Clerkenwell, E.C.
Blenkarn, W., 82, Ferndale-road, Clapham, S.W.
Bright, E. B., 45, Gerrard-st., Islington, N.
Burley, Wm., Tower-chmbrs., London Wall, E.C.
Chubb & Son, 128, Queen Victoria-st., E.C.
CUTTING, R. C. & CO., Wardrobe-chambers, Queen Victoria-st., E.C. *See index to advertisers.*
DALE, H. & E. J., 4, Little Britain, E.C., & 26, Ludgate-hill, E.C. *See index to advertisers.*
Dring & Fage, 145, Strand, W.C.

Electric Alarms, &c.,—*continued.*

Duplex Electric Light, Power & Storage Co., Limited, 9, Soho-square, W. *See index to advertisers.*
Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton Garden, E.C., & Lawford-road, N.W.
Griffith & Co., 4, Queen Anne's-gate, S.W. *See index to advertisers.*
India Rubber, Gutta Percha & Telegraph Works Company, Limited, 106, Cannon-st., E.C.
Johnston & Co., 189, Wardour-st., W.
REID BROS., 12, Wharf-road, City-road, N. *See index to advertisers.*
Sax, Julius, 108, Great Russell-st., W.C.
Shippey Bros. & Co., 13 & 14, King-st., Cheapside, E.C.
WESTON, G. & Co., 92, Mile End-road, E.

Electric Apparatus for Lighting Gas.

F.—Appareils électriques pour allumer le gaz.
G.—Electrische Apparate zum Anzünden des Gases.

APPS, A. 433, Strand, W.C. *See index to advertisers.*
Bright, E. B., 15, Gerrard-st, Islington, N.
Dale, H. & E. J., 4, Little Britain, E.C., & 26, Ludgate-hill, E.C. *See index to advertisers.*
FARADAY & SON, 3, Berners-st, W. *See index to advertisers.*
Francis & Co., (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton Garden, E.C., & Lawford-road, N.W.
GENERAL ELECTRIC APPARATUS COMPANY, 33, Aldermanbury, E.C.
India Rubber, Gutta Percha & Telegraph Works Company, Limited, 106, Cannon-st, E.C.
Johnston & Co., 189, Wardour-st, W.
Kingdom, A. & Co., 34, St. George's-road, Southwark, S.E.
MAYFIELD, J. T., 41, Queen Victoria-st., E.C. Batteries of all kinds, Zinc Plates, Rods, Cylinders, Nickle Anodes, & Nickel Plating Outfits to suit every requirement.
Sax, Julius, 108, Great Russell-st., W.C.
Spiller, Geo., (Clarke's System, &c.), 3, Wigmore st., Cavendish-square, W.
Statham, W. E., 111, Strand, W.C. *See index to advertisers.*
Strode & Co., 43, Osnaburgh-st., N.W.
Sugg, W. & Co., Limited, Vincent Works, Westminster, W.
Woodhouse & Rawson, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Electric Bell Apparatus (Contractors for maintaining).

F.—Sonneries électriques (Poseurs de).
G.—Electrische Glocken—Contractoren.

CUTTING, R. C. & Co., Wardrobe-chambers, Queen Victoria-st., E.C. *See index to advertisers.*
DALE, H. &. E. J., 4, Little Britain, E.C., & 26, Ludgate-hill, E.C. *See index to advertisers*

Digitized by Google

Electric Bell App. Contractors—*continued.*

Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., & Lawford-road, N.W.

GENERAL HOUSE APPLIANCE MANUFACTURING COMPANY (THE), 42, Vauxhall Bridge-road.

India Rubber, Gutta Percha & Telegraph Works Company, Limited, 106, Cannon-st., E.C.

Electric Bell Engineers.

F.—Sonneries électriques (Fab de).
G.—Electrische Glocken—Ingenieure.

CUTTING, R. C. & Co., Wardrobe-chambers, Queen Victoria-st., E.C. *See index to advertisers.*

Sugg, W. & Co., Vincent Works, Westminster, W.

Electric Bell Fitters.

F.—Sonneries électriques (Entrepreneurs pour l'entretien de).
G.—Electrische Glocken—Einrichter.

Adams, John, 37, Neal-st., Long Acre, W.C.
Alloway, Wm., 16, Brown-st., Grosvenor-sq., W.
Bailey, Wm. Geo., 11, Bramley-road, Notting-hill, W.
Baily, Wm. & Sons, 71, Gracechurch-st., E.C.
Baker Hy. L., 14, Little Bell-alley, Moorgate-st., E.C.
Batchelor & Sons, 45, Bell-st., Edgware-rd., N.W.
Beecham, Henry, 246, Hoxton-st., N.
Blackburn, E., 99, North-st., Edgware-rd., N.W.
Bodkin, Wm., 21, Laurence Pountney-lane, E.C.
Brignall, G. F., 144, Newington Butts, S.E.
Burling, T., 9, Brady-st., Whitechapel-road, E.
Capham, Chas., 20, Clarges-st, Piccadilly, W.
Coake, Jas., 9, St. Mary-at-hill, Eastcheap, E.C.
Coe & Smith, 11, Denmark-st., Soho, W.C.
Cove, Wm., 21, Skinner-st., St. John's-st.-road, Clerkenwell, E.C.
Croft, T. & C., 32, Denmark-road, Kilburn-park, N.W.
CUTTING, R. C. & Co., Wardrobe-chambers, Queen Victoria-st., E.C. *See index to advertisers.*
Davis, G. F., 185, Vauxhall-bridge-road, S.W.
Davis, H. & C. & Co., 286, 288 & 290 Camberwell-road, S.E.
Francis, Jas. Wm., 57, Douglas-st., Deptford, S.E.
Freeman, Henry, 10, West-st., Golden-sq., W.
Gore, Thos., 45, Douglas-st., Regency-st., Westminster, S.W.
Harrow & Co., 13 & 14, Portland-st., Soho, W.
Hewish, J. G., 42, Eagle-st., Red Lion-sq., W.C.
Holmes, H. C., 65, Grove-st., Commercial-rd., E.
James, Wm., 13, Porchester-road, W.
Kemble, Richard, 10, Falcon-grove, Clapham Junction, S.W.
Lowe, W. S., 42, Knightrider-st., E.C.
Markham, T. T., 102, Fetter-lane, E.C.
Monk, Geo., 19, Berkley-st., St. John's-lane, Clerkenwell, E.C.

Electric Bell Fitters—*continued.*

Morris, Richard, 3, Black Raven-alley, Upper Thames-st., E.C.
Newton, Jas., 138, St. John-st.-road, E.C.
Ohlson, Wm., 132, Cornwall-road, Lambeth, S.E.
Oldis Bros., 35, Wilson-st., Finsbury, E.C.
Parker, F., 381, Portobello-road, W.
PATERSON & COOPER, 76, Little Britain, E.C. *See index to advertisers.*
Pearce, T. Wm., 114, Princess-st., Edgware-road, N.W.
Richardson, Ellson & Co., 243½, High Holborn, W.C.
Sage, Fredk., 7, Buross-st., Commercial-road, E.
Seymour, Geo., 28, Gt. Crown-court, Little Pulteney-st., W.
Smart & Wyatt, 7, Drury-court, Strand, W.C.
Temple & Co., High-st., Stratford, E.
TERREY, CHAS. A., 114, Lambeth-road, S.E.
Thomas, Hy., 27, Cyrus-st., Clerkenwell, E.C.
Thorpe, H., 55, Theobald-road, W.C.
Turner, J. G., 88, Crawford-st., Portman-sq., W.
Vaughan & Browne, Farringdon-road, E.C.
Vigor, F. G. & R., 38, Burgess-st., Limehouse, E.
Walters Bros., 77, Chenies-mews, Bedford-square, W.C.
Withey, John, 15, Hoxton-st., N.

Electric Bell Manufacturers.

F.—Sonneries électriques (Fab. de).

G.—Electrische Glocken-Fabrikanten.

Adam & Son, 57, Haymarket, S.W.
Apps, A., 433, Strand, W.C. *See index to advertisers.*
Archbutt, J. & W. E., 8, Bridge-st., Westminster, S.W.
Ashby, George Frederick, 65, King's-road, Chelsea, S.W.
Berry, F. H., 8, Percival-st., Clerkenwell, E.C.
Binko, Siegel & Co., 12, Coleman-st., E.C. *See index to advertisers.*
Binswanger, G., & Co., Aldermanbury. Makers of the Patent Portable Silver Battery.
Blenkarn, W., 82, Ferndale-rd., Clapham, S.W.
BRYDEN, JOHN & SONS, 2, Bulstrode-st. (corner of Welbeck-st.), Cavendish-square, W., and at 16, Frederick-st., Edinburgh; 24, Renfield-st., Glasgow; 7, Princes-st., Perth; Commercial-st., Dundee. Established 1809. *See index to advertisers.*
BURLEY, WM., Tower-chambers, London-wall, E.C. Electric Bells, Burglar Alarms and Safety Alarm Bolts. Experienced fitters sent to all parts. Proprietor of Young's Patent Cord Holdfast for Venetian Blinds, and Patent Simplex Ratchet Muslin Blind Tightener.
Challis Bros., Bell Founders, Bushberry Works, Sidney-road, Homerton, E. *See index to advertisers.*
Christie, J. C., 3, Mansell-st., Aldgate, E.

Digitized by Google

Electric Bell Manufacturers—*continued.*

Clarke, J. F., 49, Moorgate-st., E.C.
Coe & Smith, 11, Denmark-st., Soho, W.C.
Crampton, T. & Co., 251, High Holborn, W.C.
CUTTING, R. C. & CO., Wardrobe-chambers, Queen Victoria-st., E.C. *See index to advertisers.*
DALE, H. & E. J., 4, Little Britain, E.C., & 26, Ludgate-hill, E.C. Dale's Metallic Base Bell. Dale's New British Indicator. *See index to advertisers.*
Davis, G. F., 185, Vauxhall-bridge-road, S.E.
Duplex Electric Light, Power & Storage Co. Limited, 9, Soho-square, W. *See index to advertisers.*
Edmundson, J. & Co., 19, Great George-st., S.W.
Feetham, Mark & Co., 9, Clifford-st., New Bond-st., W.
Fenn, W. Thomas, 5, North-st., Sloane-sq., S.W.
Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, and Lawford-road, N.W.
Fynn & Carle, 22, Pigott-st., E.
General House Appliance Manufacturing Co., 42, Vauxhall-bridge-road, S.E.
GRAY, J. W. & SON, 58, Fenchurch-st., E.C. *See index to advertisers.*
Hancock, Wm., 22, Stratford-road, W.
Hawthorne & Co., 41, George-st., Euston-road, N.W.
Homfray & Co., 46, City-road, E.C.
India Rubber, Gutta Percha, & Telegraph Works Co., Limited, 106, Cannon-st., E.C.
Izant, Frdk., 50, Kenton-st., Brunswick-sq., W.C.
Johnston & Co., 189, Wardour-st., W.
KOERBER, J. A., 44, Frith-st., Soho, W.
LEVY, ARMAND, Electrical Sundriesman, Bells of all systems, Indicators, Batteries, &c., 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; & 42, Rue de Ruysbroeck, Brussels.
MARKHAM, T. T., 192, Fetter-lane, E.C.
MAYFIELD, J. T., 41, Queen Victoria-st., E.C. Manufacturer & Fitter of Electric Bells, Trembling, Single Stroke, Continuous Action. Portable Bells in Case, especially useful for Invalids, Indicators, Batteries, Wires, Pushes or Press Buttons, and other Signalling Appliances.
Medland, J. B., 12, Borough, London-bridge, S.E.
NAPPER, SIDNEY, 9, Fenchurch-st., E.C.
ORME & CO., J. (late M. Jackson & Co.), 65, Barbican, E.C.
PATERSON & COOPER, 76, Little Britain, E.C. *See index to advertisers.*
Purcell & Nobbs, 89, Cleveland-st., Fitzroy-square, W.
REID BROS., 12, Wharf-road, City-road, N. *See index to advertisers.*
Sanderson & Co., Leadenhall-house, 101, Leadenhall-st., E.C.
Sax, Julius, 108, Great Russell-st., W.C.
Schoth, G. A., 232, Euston-road, N.W.
Seaker, J. & E. B., 26, Duke-st., Westminster-bridge-road, S.E.
Signal Engineering Co., 181, High Holborn, W.C.

Electric Bell Manufacturers—*continued.*

STEVENS, F. A., 65, West Smithfield, E.C. *See index to advertisers.*
Strode & Co., 48, Osnaburgh-st., N.W.
Thorpe, Harry, 55, Theobald's-road, W.C.
WESTON, G. & CO., 92, Mile-end-road, E.
Willard, C. J. & Son, 85, Hoxton-st., N.
Young & Buss, 18, Blandford-st., W.
Zimdars, C. E., 327, Gray's-inn-road, W.C.

Electric Boats.

F.—Bateaux électriques.
G.—Electrische Böte.

Binswanger, G. & Co., 33, Aldermanbury, E.C.

Electric Carbon Manufacturers.

F.—Charbons électriques (Fab. de).
G.—Electrische Kohlen—Fabrikanten.

ELECTRIC CARBON MANUFACTURING CO., 10, Mansion-house-chambers, 11, Queen Victoria-st., E.C. *See index to advertisers.*
ELECTRIC LIGHT CARBON CO., 133A, Gt. Suffolk-st., Borough, S.E. *See index to advertisers.*
ELECTRIC LIGHTING SUPPLY & FITTING CO., 1, Victoria-mansions, Victoria-st., Westminster, S.W. *See index to advertisers.*
ELECTRICAL TRADING CO., 2, Victoria-mansions, Westminster, S.W. *See index to advertisers.*
Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.
Hammond Electric Light & Power Supply Co., 110, Cannon-st., E.C.
India Rubber, Gutta Percha & Telegraph Works Co., Limited, 106, Cannon-st., E.C.
JOHNSON & PHILLIPS, 14, Union-court, Old Broad-st., E.C.; & Victoria Works, Charlton, S.E. *See index to advertisers.*
Siemens Bros., 12, Queen Anne's-gate, Westminster, S.W.
WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. Pencils, Plates & Cylinders in stock. *See index to advertisers.*

Electric Clock Manufacturers.

F.—Horloges électriques.
G.—Electrische Uhren—Fabrikanten.

Reid Bros., 12, Wharf-road, City-road, N. *See index to advertisers.*
THWAITS & READ, Bowling-green-lane. E.C. *See index to advertisers.*

Electric Clocks & Electric Synchronization.

F.—Horloges électriques et synchronisation.
G.—Electrische Uhren und Zeitmesser.

Barraud & Lunds', 41, Cornhill, E.C.

Digitized by Google

Electric Clocks & Synchron.—*continued.*

COMPAGNIE GENERALE DES HORLOGES PNEUMATIQUES DE PARIS.—Popp & Resch Patent System.—The correct time distributed to any number of public and private clocks in a town, or all the clocks periodically synchronized by means of the PNEUMATIC system, as in use in the public thoroughfares and private houses of Paris. All the working parts of the machinery and apparatus at the Central and Distributing Stations automatically & *electrically* controlled. A yearly rental charged at a very moderate figure. Agent for Great Britain, J. A. BERLY, C.E., A.S.T.E. & E., 16, New Bridge-st., E.C. *See index to advertisers.*

Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., & Lawford-road, N.W.

Groves, W., 89, Bolsover-st., W. A. Stork's Magnetic Clocks.

Lund & Blockley, 42, Pall-mall, S.W.

Electric Depositor.

F.—Electro deposition.

G.—Galvanisator für Kunstsachen.

KING, I. W., 18, St. John's-sq., E.C. Any Work of Art, Medallions, &c., reproduced. Panels for Cabinet Makers' work.

Electric Lamp Manufacturers—Arc.

F.—Lampes électriques à Arc (Fab. de).

G.—Electrische Lampen—Arc.

Anglo-American Brush Electric Light Corporation, Limited (The), 108, Belvedere-road, Lambeth, S.E. (Brush system.) *See index to advertisers.*

ANGLO-AUSTRIAN (BRUSH) ELECTRICAL CO., LIMITED, 4, Copthall-buildings, Throgmorton-st., E.C.

BERLY, J. A., C.E., A.S.T.E., &c., 16, New Bridge-st., E.C. Agent for Hajnis (of Prague) Patent Arc Lamp, and Mondos Patent Arc Lamp. *See index to advertisers.*

Binswanger, G. & Co., 33, Aldermanbury, E.C.

BIRMINGHAM AND WARWICKSHIRE (BRUSH) ELECTRIC LIGHT & POWER CO, LIMITED, 110, Cannon-st., E.C.

BRITISH ELECTRIC LIGHT CO., LIMITED, Heddon-st., Regent-st., W. Brockie Arc Lamp, and other Lamps. British Incandescent Lamp. *See index to advertisers.*

CLARK (L.), MUIRHEAD & CO., 23, Regency-st., Westminster, S.W. Andrews' system & Dr. Hopkinson's system.

CROMPTON, R. E. & CO., 4, Queen Victoria-st., E.C. Crompton system. *See index to advertisers.*

Dale, H. & E. J., 4, Little Britain, E.C., & 26, Ludgate-hill, E.C. *See index to advertisers.*

Elec. Lamp Manfs.—Arc Lamp—*continued.*

Duplex Electric Light, Power & Storage Co. Limited, 9, Soho-square, W. *See index to advertisers.*

ELECTRIC "SUN" LAMP & POWER CO. Limited, St. Margaret's Offices, Victoria-st., Westminster, S.W. *See index to advertisers.*

Electric Lighting Supply Co., 1, Victoria-st., Westminster, S.W.

ELECTRICAL TRADING COMPANY, 2, Victoria-mansions, Westminster, S.W. *See index to advertisers.*

ELECTROLYTIC CO. (THE), Charlotte-st., Blackfriars, S.E. *See index to advertisers.*

Francis & Co. (F. R. Francis, C.E., Manager) Eagle Telegraph Works, Hatton-garden, E.C. & Lawford-road, N.W.

GULCHER ELECTRIC LIGHT & POWER CO., 121, Bishopsgate-st. Within, E.C. *See index to advertisers.*

HAMMOND ELECTRIC LIGHT & POWER SUPPLY CO., 110, Cannon-st., E.C.

India Rubber, Gutta Percha, & Telegraph Works Co., Limited, 106, Cannon-st., E.C.

Johnson & Phillips, 14, Union-court, Old Broad-st., E.C. *See index to advertisers.*

LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; & 42, Rue de Ruysbroeck, Brussels. Agent for the Jasper, Cance, Lachausse, and other Lamps.

LONDON AND PROVINCIAL ELECTRIC LIGHTING & POWER GEN. CO. LIMITED, 21, Great Winchester-st., Old Broad-st., E.C. *See index to advertisers.*

METROPOLITAN (BRUSH) ELECTRIC LIGHT & POWER CO., LIMITED, 110, Cannon-st., E.C.

PILSEN, JOEL, & GENERAL ELECTRIC LIGHT CO., LIMITED (THE), St. Stephen's-chambers, Telegraph-st., E.C. *See index to advertisers.*

REID BROS., 12, Wharf-road, City-road, N. *See index to advertisers.*

Siemens Bros., 12, Queen Anne's-gate, Westminster, S.W. (Siemens' system.)

Woodhouse & Rawson, 11, Queen Victoria-st., E.C. Models made and experiments carried out. *See index to advertisers.*

Standard Fyfe-Main Electric Lighting & Construction Co., 26, Queen Victoria-st., E.C.

Electric Lamp Manufacturers—Incandescent.

F.—Lampes électriques à Incandescence (Fab. de).

G.—Electrische Lampen—Glühlicht.

Apps, A., 433, Strand, W.C. *See index to advertisers.*

BERLY, J. A., C.E., A.S.T.E., &c., 16, New Bridge-st., E.C. Agent for Nothomb's Patent Incandescent Lamp, 10 to 300 Candle Power. *See index to advertisers.*

Digitized by Google

Elec. Lamp Manufacturers—*continued.*

BIRMINGHAM & WARWICKSHIRE (BRUSH) ELECTRIC LIGHT & POWER CO., LIMITED, 110, Cannon-st., E.C.

BRITISH ELECTRIC LIGHT CO., LIMTD., Heddon-st., Regent-st., W. *See index to advertisers.*

DALE, H. & E. J., 4, Little Britain, E.C. and 26, Ludgate-hill. *See index to advertisers.*

Edmundson, J. & Co., 19, Gt. George-st., Westminster, S.W.

Duplex Electric Light, Power & Storage Co. Limited, 9, Soho-square, W. *See index to advertisers.*

ELECTRIC LIGHTING SUPPLY & FITTING CO., (THE) 1, Victoria-mansions, Victoria-st., S.W. Sole makers of Hedge's Patent Spark-Reducing Switches, as used by all the leading companies. Kept in stock at the Supply Company's Stores. *See index to advertisers.*

ELECTRICAL TRADING CO, 2, Victoria-mansions, Westminster, S.W. *See index to advertisers.*

ELECTROLYTIC CO., (THE) Charlotte-st., Blackfriars, S.E. *See index to advertisers.*

Francis & Co. (F. R. Francis, C.E., manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.

GULCHER ELECTRIC LIGHT & POWER CO., 121, Bishopsgate-st. Within, E.C. *See index to advertisers.*

HAMMOND ELECTRIC LIGHT & POWER SUPPLY CO., 110, Cannon-st., E.C.

India-Rubber, Gutta-Percha, and Telegraph Works Co., Limited, 106, Cannon-st., E.C.

Laing, White, & Wharton (Agents), 8 & 9 Holborn Viaduct, E.C. *See index to advertisers.*

LONDON & PROVINCIAL ELECTRIC LIGHTING & POWER GENERATOR CO., LIMITED, 21, Great Winchester-st., Old Broad-st., E.C. *See index to advertisers.*

METROPOLITAN (BRUSH) ELECTRIC LIGHT & POWER CO., LIMITED, 110, Cannon-st., E.C.

PILSEN, JOEL, & GENERAL ELECTRIC LIGHT CO., LIMITED (THE), St. Stephen's-chambers, Telegraph-st., E.C. *See index to advertisers.*

REID, BROS., 12, Wharf-road, City-road, N. *See index to advertisers.*

Siemens Bros. & Co., Limited, 12, Queen Anne's-gate, Westminster, S.W. (Swan system.)

Standard Fyfe-Main Electric Lighting & Construction Co., 26, Queen Victoria-st., E.C. *See index to advertisers.*

SWAN UNITED ELECTRIC LAMP CO., LIMITED, ST. MILDRED'S HOUSE, POULTRY, E.C. *See index to advertisers.*

WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. All kinds of lamps made to order. Experiments carried out. *See index to advertisers.*

Electric Lamp Posts.

F.—Lampadaires électriques.
G.—Lampen l'fosten (electr.)

DAVIS, T. Palace-chambers, 9, Bridge-st., Westminster, S.W.

STANTON IRON WORKS CO., LIMITED, Palace-chambers, 9, Bride-st., Westminster, S.W.

Electric Light Apparatus Manufacturers.

F.—Eclairage électrique (Fab. d'appareils d').
G.—Apparate für electrische Beleuchtung.

ANGLO-AMERICAN (BRUSH) ELECTRIC LIGHT CORPORATION, LIMITED, 108, Belvedere-road, Lambeth, S.E. *See index to advertisers.*

ANGLO-AUSTRIAN (BRUSH) ELECTRICAL CO., LIMITED, 4, Copthall-buildings, Throgmorton-st., E.C.

Apps, A., 433, Strand, W.C. *See index to advertisers.*

BIRMINGHAM & WARWICKSHIRE (BRUSH) ELECTRIC LIGHT & POWER CO., LIMITED, 110, Cannon-st., E.C.

BRITISH ELECTRIC LIGHT CO., LIMITED, Heddon-st., Regent-st., W. *See index to advertisers.*

British & Irish Telephone & Electric Works Co., 20, Regent-st., S.W.

CLARK, L., MUIRHEAD & CO., 23, Regency-st., Westminster, S.W.

CROMPTON, R. E. & CO., 4, Queen Victoria-st., E.C. *See index to advertisers.*

DEFRIES, J. & SONS, 147, Houndsditch, E. *See index to advertisers.*

Eastern Electric Light & Power Co., Limited, Winchester-house, Old Broad-st., E.C.

Edmundson, J. & Co., 19, Gt. George-st., S.W.

Electric Light Engineering Co., 35, Queen Victoria-st., E.C.

ELECTRIC LIGHTING SUPPLY AND FITTING CO. (THE), Victoria-mansions, Victoria-st., Westminster, S.W. *See index to advertisers.*

ELECTRICAL TRADING CO., 2, Victoria-mansions, Westminster, S.W. *See index to advertisers.*

ELECTROLYTIC CO. (THE), Charlotte-st., Blackfriars, S.E. *See index to advertisers.*

ELLIOTT BROS., 101, St. Martin's-lane, W.C.

Farraday & Son, 3, Berners-st., Oxford-st., W.

GULCHER ELECTRIC LIGHT & POWER CO., 121, Bishopsgate-st. Within, E.C. *See index to advertisers.*

HAMMOND ELECTRIC LIGHT & POWER SUPPLY CO., 110, Cannon-st., E.C.

India-Rubber, Gutta-Percha, and Telegraph Works Co., Limited, 106, Cannon-st., E.C.

JOHNSON & PHILLIPS, 14, Union-court, Old Broad-street, E.C. *See index to advertisers.*

Jones, Thos. John, 12, Princes-st., Hanover-square, W.

Digitized by Google

Electric Light Ap. Manufac.—*continued.*

Légé, Annibal & Co., Turnmill-st., E.C.

LONDON & PROVINCIAL ELECTRIC LIGHTING & POWER GENERATOR CO., LIMITED, 21, Great Winchester-st., Old Broad-st., E.C. *See index to advertisers.*

METROPOLITAN (BRUSH) ELECTRIC LIGHT & POWER CO., LIMITED, 110, Cannon-st., E.C.

PATERSON & COOPER, 76, Little Britain, E.C. *See index to advertisers.*

PILSEN, JOEL, & GENERAL ELECTRIC LIGHT CO., LIMITED (THE), St. Stephen's-chambers, Telegraph-st., E.C. *See index to advertisers.*

Railway & Electric Appliances Co., Limited, 31, Lombard-st., E.C.

REID BROS., 12, Wharf-road, City-road, N. *See index to advertisers.*

RIVER PLATE TELEPHONE & ELECTRIC LIGHT CO., LIMITED (THE), 6, Lombard-st., E.C.

Siemens Bros. & Co., Limited, 12, Queen Anne's-gate, Westminster, S.W.

STRODE & CO., 48, Osnaburgh-st., N.W.

Tiddy, Wm. Ninnis, 12, Princes-st., Hanover-square, W.

Verity, Benj. & Sons, King-st., Covent-garden, W.C.

WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Electric Light Companies.

F.—Eclairage électrique (Compagnies d')

G.—Gesellschaften für electrische Beleuchtung.

Albo-Carbon Light Co., 132B, Horseferry-road, Westminster, S.W.

ANGLO-AUSTRIAN (BRUSH) ELECTRICAL CO., LIMITED, 4, Copthall-buildings, Throgmorton-st., E.C.

Anglo-Pacific Electric Light, Telephone & Power Co., Limited (The), 31, Queen Victoria-st., E.C.

Australasian Electric Light, Power & Storage Co., Limited, 4, Copthall-buildings, E.C.

Brush Electric Light Co., Old Pin Factory, Mansfield-st., Borough-road, S.E.

Brush Electric Light Co., Limited, Middon-st. Works, Turk's-head-yard, Turnmill-st., Clerkenwell, E.C.

Brush Electric Light Co. of Ireland, 31, Lombard-st., E.C.

Brush (Midland) Electric Light & Power Co., 31, Lombard-st., E.C.

Barker, L. & Co., Mansion-house-chambers, 11, Queen Victoria-st., E.C.

DUPLEX ELECTRIC LIGHT, POWER & STORAGE CO., LIMITED, 9, Soho-square, W. *See index to advertisers.*

Edison Electric Light Co., Limited, 74, Coleman-st., E.C.

Electric Lighting, Contract and Maintenance Co., 1, Queen Victoria-st., E.C.

Electric Light Companies—*continued.*

Electrical Power Storage Co., Limited, 4, Great Winchester-st.-buildings, E.C. *See index to advertisers.*

ELECTRICAL TRADING CO. (THE), 2, Victoria-mansions, Westminster, S.W. *See index to advertisers.*

General Hydraulic Power Co. (The), Palace-chambers, 9, Bridge-st., Westminster, S.W.

GREAT WESTERN ELECTRIC LIGHT & POWER CO., LIMITED, 31, Lombard-st., London, E.C., & 16, High-st., Bristol. (J. Parson, Manager.)

River Plate Telephone & Electric Light Co., Limited, 6, Lombard-st., E.C.

Phœnix Electric Light & Power Co., Limited, 4, George-st., Hanover-square, W.

PILSEN, JOEL, & GENERAL ELECTRIC LIGHT CO., LIMITED, St. Stephen's-chambers, Telegraph-st., E.C. *See index to advertisers.*

PROVINCIAL (BRUSH) ELECTRIC LIGHT & POWER CO., LIMITED, 110, Cannon-st., E.C. (*G. Offor, Manager.*)

ROYEN ELECTRIC LIGHT CO., Holborn-viaduct, E.C.

South African (Brush) Electric Light & Power Co., Limited, 5, Copthall-buildings, E.C.

SOUTH EASTERN (BRUSH) ELECTRIC LIGHT & POWER CO., LIMITED, 110, Cannon-st., E.C. (*G. Offor, Manager.*)

Standard (Fyfe-Main) Electric Lighting Co., 26, Queen Victoria-st., E.C. *See index to advertisers.*

SWAN ELECTRIC LIGHT CO., LIMITED, 39, Coleman-st., E.C. *See index to advertisers.*

Yorkshire (Brush) Electric Light & Power Co., Limited, 11, Queen Victoria-st., E.C.

Electric Light Contractors.

F.—Eclairage électrique (Entrepreneurs d').

G.—Electrisches Licht—Contractoren.

ANGLO-AMERICAN (BRUSH) ELECTRIC LIGHT CORPORATION (LIMITED), 108, Belvedere-road, Lambeth, S.E. *See index to advertisers.*

Anglo-Austrian (Brush) Electrical Co., Limited, 4, Copthall-buildings, E.C.

Anglo-Spanish (Brush) Electric Light & Power Co., Limited, 110, Cannon-st., E.C.

Apps, A., 433, Strand, W.C. *See index to advertisers.*

Australasian Electric Light, Power & Storage Co., Limited, 4, Copthall-buildings, E.C.

BIRMINGHAM & WARWICKSHIRE (BRUSH) ELECTRIC LIGHT & POWER COMPANY, LIMITED, 110, Cannon-st., E.C.

Digitized by Google

Electric Light Contractors—*continued.*

BRITISH ELECTRIC LIGHT COMPANY (LIMITED), Heddon-st., Regent-st, London, W. Gold Medal at the Paris Electrical Exhibition, 1881. Gold Medal at the Crystal Palace Electrical Exhibition, 1882. Sole licensees for the well-known Gramme Electric Lighting Machine. Contractors for the supply of Electric Light on all approved systems. *See index to advertisers.*

Brush Electric Light & Power Co. for the Channel Islands & Isle of Man, Limited, 88, Bishopsgate-st. Within, E.C.

Brush Electric Light Co. of Ireland, 31, Lombard-st., E.C.

Brush Electric Light & Power Co. of Scotland, Limited, 9, New Broad-st., E.C.

Brush Midland Electric Light & Power Co., Limited, 31, Lombard-st., E.C.

CALDER, J. J. & CO., (late Calder & Barrett), 154, Westminster-bridge-road, S.E.

CROMPTON, R. E. & Co., 4, Queen Victoria-st, E.C. Contractors to the Swan United Electric Light Company. *See index to advertisers.*

CUTTING, R. C. & CO., Wardrobe-chambers, Queen Victoria-st., E.C. *See index to advertisers.*

DEFRIES, J. & SONS, 147, Houndsditch, E.C. *See index to advertisers.*

Duplex Electric Light, Power & Storage Co. Limited, 9, Soho-square, W.

Edison Electric Light Co., Limited, 74, Coleman-st., E.C.

ELECTRIC FINANCE ASSOCIATION, 13 & 14, King-st., Cheapside, E.C., Established to financially assist inventors and to promote and sell all approved inventions. *Arthur Shippey, General Manager.*

Electric Light Engineering Company, 35, Queen Victoria-st., E.C.

ELECTRIC LIGHTING AND GENERAL AGENCY CO. (J. Glew, Manager), Crown Building, 79, Queen-st., E.C. *See index to advertisers.*

ELECTRIC LIGHTING SUPPLY & FITTING CO. (THE), 1, Victoria-mansions, Victoria-st., Westminster, S.W. *See index to advertisers.*

Electric Lighting, Contract & Maintenance Co., Limited, 1, Queen Victoria-st., E.C.

Electrical Power Storage Co., Limited, 4, Great Winchester-st Buildings, E.C. *See index to advertisers.*

ELECTRIC "SUN" LAMP & POWER CO. Limited, St. Margaret's Offices, Victoria-st., Westminster, S. W. *See index to advertisers.*

ELECTROLYTIC CO. (THE), Charlotte-st., Blackfriars-road, S.E. *See index to advertisers.*

Faure Electric Accumulator Co., Limited, 71, Queen-st., E.C.

Ferranti, Thompson & Ince, Limited, 3, Fenchurch-avenue, E.C.

Forrest, G. & Son, 23, New-st.-square, E.C.

Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.

Electric Light Contractors—*continued.*

Great Western Electric Light & Power Co., Limited, 31, Lombard-st., E.C.

GULCHER ELECTRIC LIGHT & POWER CO., 121, Bishopsgate-st., Within, E.C. *See index to advertisers.*

HAMMOND & CO., 110, Cannon-st., E.C.

HAMMOND ELECTRIC LIGHT & POWER SUPPLY CO., 110, Cannon-st., E.C.

Home, Foreign & Colonial Electric Light & Power Share Trust Co., Limited, 88, Bishopsgate-st. Within, E.C.

India-Rubber, Gutta-percha, & Telegraph Works Co., Limited, 106, Cannon-st., E.C.

Jablochkoff Electric Light & Power Co., Limited, 1 & 2, Gt. Winchester-st., E.C.

Johnson & Phillips, 14, Union-court, Old Broad-st., E.C. *See index to advertisers.*

La Force et La Lumière Co., 446, Strand, W.C.

LONDON & PROVINCIAL ELECTRIC LIGHTING & POWER GENERATING COMPANY, LIMITED, 21, Great Winchester-st, Old Broad-st., E.C. *See index to advertisers.*

Markland Electric Lighting, Power & Regulator Co., Limited, 8, Tokenhouse-yard, E.C.

Maxim Weston Electric Co., Limited, 47, Cannon-st., E.C.

METROPOLITAN (BRUSH) ELECTRIC LIGHT & POWER CO., LIMITED, 110, Cannon-st., E.C.

PATERSON & COOPER, 76, Little Britain, E.C. *See index to advertisers.*

Phœnix Electric Light & Power Co., 4, George-st., Hanover-square, W.

PILSEN, JOEL, & GENERAL ELECTRIC LIGHT CO., LIMITED, St. Stephen's-chambers, Telegraph-st., E.C. *See index to advertisers.*

Provincial (Brush) Electric Light & Power Co., Limited, 110, Cannon-st., E.C.

REID BROS., 12, Wharf-road, City-road, N. *See index to advertisers.*

River Plate Telephone & Electric Light Co., 6, Lombard-st., E.C.

Rogers Electric Light & Power Co., Limited, 47, Holborn-viaduct, E.C.

SHIPPEY BROS. & CO., 13 & 14, King-st., Cheapside, E.C.

Siemens Bros. & Co., 12, Queen Anne's-gate, Westminster, S.W.

South African (Brush) Electric Light & Power Co., Limited, 5, Copthall-buildings, E.C.

South Eastern (Brush) Electric Light & Power Co., Limited, 110, Cannon-st., E.C.

Standard Fyfe-Main Electric Lighting & Construction Co., 26, Queen Victoria-st., E.C. *See index to advertisers.*

Stuart Electric Light & Power Co., Limited, 11, Queen Victoria-st., E.C.

Swan United Electric Light Co., Limited, 9, St. Mildred's-court, Poultry, E.C.

Universal Electric Light Co., 13 & 14, King-st., E.C.

Digitized by Google

Electric Light Contractors—*continued.*

UNIVERSAL ELECTRIC LIGHT COMPANY (Frederick Shippey, Secretary), 13 & 14, King-st., Cheapside, E.C.

West Middlesex Electric Lighting Co., Limited, 14, King-st. West, Hammersmith, W.

WOODHOUSE & RAWSON, 11, Queen Victoria-st, E.C. *See index to advertisers.* Estimates given for every class of work.

Electric Light Fitting Manufacturers and Fitters.

F.—Eclairage électrique (Fab. d'appareillage d' et monteurs).

G.—Electrisches Licht—Monteure.

Anglo-American (Brush) Electric Light Corporation, Lim., 108, Belvedere-road, Lambeth, S.E. *See index to advertisers.*

Apps, A., 433, Strand, W.C. *See index to advertisers.*

Barwell, Son & Fisher, Waltham-buildings, Holborn-circus, W.C. Manufactory, Worcester Works, Clement-st, Birmingham

Christie, J. C., 3 and 5, Mansell-st., Aldgate, E.

Crompton Winfield Electric Light Association, 49, Farringdon-st., E.C. *See index to advertisers.*

Dale, H & E. J., 4, Little Britain, E.C. & 26, Ludgate-hill, E.C. *See index to advertisers.*

Davis & Timmins, Bowling Green-lane, E.C. *See index to advertisers.*

DEFRIES, J. & SONS, 147, Houndsditch, E.C. *See index to advertisers.*

ELECTRIC LIGHTING SUPPLY & FITTING CO., LIMITED (Manager, W. Bridges Adams), 1, Victoria-mansions, Westminster, S.W. Stores, Dacre-st., Westminster, S.W.; Works, York-st., Westminster, S.W. *See index to advertisers.*

ELECTRIC "SUN" LAMP & POWER CO., Limited., St. Margaret's Offices, Victoria-st., Westminster, S.W.

Evered, R. & Co., Limited, 27, Drury-lane, W.C.

Faraday & Son, 3, Berners-st., W. *See index to advertisers.*

Forrest, G. & Son, 23, New-st.-square, E.C.

GREENE, H. & SON, 153, Cannon-st., E.C. *See index to advertisers.*

Hodge & Co., 100, Hatton-garden, E.C.

HULETT, D. & Co., 55, High Holborn, W.C. Sole makers of the Berly & Hulett patent sliding contact suspension, applicable to every system of electric lighting. *See index to advertisers.*

India-Rubber, Gutta-Percha, and Telegraph Works Co., Limited, 106, Cannon-st., E.C.

Jones, G. Willis, 43, Great Russell-st., W.C.

Laing, White, & Wharton, 8 & 9, Holborn Viaduct, E.C. *See index to advertisers.*

LEVY, ARMAND, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris, and 42, Rue de Ruysbroeck, Brussels. All class of fittings, globes for all systems kept in stock, carbon terminals, &c.

Elec. Light Fitting Manfs., &c.—*continued.*

Perry & Co., 72, New Bond-st., W.

Powell, James & Sons, Temple-st., Whitefriars, E.C.

Reid Bros., 12, Wharf-road, City-road, N. *See index to advertisers.*

Standard Fyfe-Main Electric Lighting & Construction Co., 26, Queen Victoria-st., E.C. *See index to advertisers.*

Sugg, W. & Co. (Limited), Vincent Works, Westminster, S.W.

Verity, B. & Sons, 31 & 32, King-st., Covent-garden, W.C.

WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. Estimates given immediately. *See index to advertisers.*

Electric Light Patentees and Contractors.

F.—Eclairage électrique (Brevetés et Entrepreneurs pour).

G.—Electrisches Licht—Patentbureau und Contractoren.

ROGERS, F. M., 21, Finsbury-pavement, E.C. *See index to advertisers.*

Electric Light Systems.

F.—Eclairage électrique (Systems d').

G.—Electrisches Licht—Systeme.

Anglo-American (Brush) Electric Light Corporation (Limited), 108, Belvedere-road, Lambeth, S.E. *See index to advertisers.*

Edison, T. A. (E. H. Johnson, Manager), 14, Coleman-st., E.C.

GULCHER ELECTRIC LIGHT & POWER CO., 121, Bishopsgate-st. Within, E.C. *See index to advertisers.*

India-Rubber, Gutta-Percha, and Telegraph Works Co., Limited, 106, Cannon-st., E.C.

LONDON & PROVINCIAL ELECTRIC LIGHTING & POWER GENERATING CO., LIMITED, 21, Great Winchester-st., Old Broad-st., E.C. *See index to advertisers.*

Standard Fyfe-Main Electric Lighting & Construction Co., 26, Queen Victoria-st., E.C. *See index to advertisers.*

Electric Lighting Tackle Makers.

F.—Palans (Fab. de) pour l'Eclairage électrique.

G.—Taumacher für Electrisches Licht.

Electric Lighting Supply and Fitting Co., Limited (Manager, W. Bridges Adams), Offices, 1, Victoria-mansions, Westminster, S.W.; Stores, Dacre-st., Westminster, S.W.; Works, York-st., Westminster, S.W. *See index to advertisers.*

Electric Locks.

F.—Serrures électriques.

G.—Electrische Schlösser.

Chubb & Son, 128, Queen Victoria-st., E.C.

Hobbs, Hart & Co., 76, Cheapside, E.C.

Digitized by Google

Electric Measuring Instrument Makers.

F.—Instruments de Mesures électriques (Fab. d').
G.—Messinstrumente für Electricität.

Darlington, J., 1, Coleman-st.-buildings, Moorgate-st., E.C. Spark Scale to show the passage of spark across five breaks in the circuit. Spark Scale consisting of five discs, each disc having ten breaks.

Foxcroft, Wm. M., 36, Percival-st., Clerkenwell, E.C. Ayrton & Perry's Dispersion Photometer, for measuring the illuminating power of the electric light; also cases for the Ammeter and Voltmeter of Ayrton & Perry. *See index to advertisers.*

PATERSON & COOPER, 76, Little Britain, E.C. *See index to advertisers.*

Sanderson & Co., 101, Leadenhall-st., E.C. Established 1852. Anderson's Improved Portable Galvanometer for testing lighting conductors.

Electric Railway Companies.

F.—Machines électriques à Grande Vitesse.
G.—Electrische Eisenbahnen—Gesellschaften.

International Electric Railway Co. (General Manager, Mr. Binko), Crystal Palace, S.E. *See index to advertisers.*

Electric Specialities Manufacturers.

F.—Spécialités électriques (Fab. de).
G.—Specielle electrische Artikel.

Apps, A., 433, Strand, W.C. *See index to advertisers.*

BINSWANGER, G. & CO., 33, Aldermanbury, E.C. Reckenzaun patent of graduator resistance.

BOURNE, JOSEPH & SONS, Denby Pottery, near Derby, and 6, St. Pancras Station, Euston-road, London, N.W. Patent insulators, and battery jars in brown stoneware, white stoneware and brown porcelain, porous cells, stoneware knobs for street lamps, and pole caps for telegraph posts, chemical stoneware of all descriptions. Contractors to Her Majesty's Postal Telegraph Department, Colonial and Foreign Governments, Railway Companies, &c. Prize Medals—London, New York, Sydney and Paris. The special characteristics of these manufactures are a high degree of vitrefaction, combined with great toughness and strength, at small cost. *See index to advertisers.*

Challis Bros., Bushberry Works, Sidney-road, Homerton, E. *See index to advertisers.*

CONTI, A. E., 26a, Smith-st., Northampton-square, E.C. *See index to advertisers.*

CRYSTAL PORCELAIN POTTERY CO., LTD. 23, St. Swithin's-lane, E.C. Works, Cobridge, Stoke-on-Trent. Telegraphic and Electrical Ware. *See index to advertisers.*

Davis & Timmins, Bowling-green-lane, Clerkenwell, E.C. *See index to advertisers.*

Electric Specialities Manfs.—*continued.*

DOULTON & CO., Lambeth Pottery, London, S.E., and at Burslem, Staffordshire. Accumulators, porous cells, battery jars, insulators in stoneware and white earthenware, knobs for tops of street lamps, caps for telegraph posts, porous plates (round or square), pipes with ground joints for preservation of electric wires underground, Slater Lewis's patent self-binding insulators, crucibles and general chemical ware. Awarded only medal at the International Electric Exhibition, London, 1882. Contractors to the Postmaster-General and Indian Government.

Electric Lighting Supply and Fitting Company, Limited, 1, Victoria Mansions, Westminster, S.W. (W. Bridges Adams, Manager.) Stores, Dacre-st.; Works, York-st., Westminster, S.W. *See index to advertisers.*

Faraday & Son, 3, Berners-st., W. *See index to advertisers.*

Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.

GRIFFITHS & CO., 4, Queen Anne's-gate, S.W. *See index to advertisers.*

LEVY, ARMAND, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; and 42, Rue de Ruysbroeck, Brussels. Electrical sundries man. Construction of all classes of electrical machines. Inventions carried out.

ORME & CO., J. (late M. Jackson & Co.), 65, Barbican, E.C.

PATERSON & COOPER, 76, Little Britain, E.C. *See index to advertisers.*

Royal Galvanic Baths, 55, Marylebone-road, W. Galvanic baths are beneficial for the cure of neuralgia, paralysis, gout, weakness, rheumatism, &c.

STIFF, JAMES & SONS, London Pottery, Lambeth, London, S.E. (Established 1751.) Electrical specialities: POROUS CELLS, CYLINDERS and PLATES, white or red, with or without glazed edges; porous cells, specially hard (2nd and 3rd resistance) as supplied to Postal Telegraph Department for bi-chromatic batteries, or sufficiently soft and porous to suit any battery; flat porous plates, any size up to 15 in. square if required. BATTERY JARS, round or rectangular; a large assortment of sizes always in stock, and any size made to order. ACCUMULATORS, INSULATORS of every kind in brown stoneware or white stoneware; also small insulators of all patterns for electric lighting, highly vitrified, strong and cheap; improved stoneware tubes for preserving earth wires; caps for telegraph posts; knobs for street lamps; crucible and all kinds of porous ware and stoneware for chemical or electrical purposes. Prize Medals; Paris (Electrical), 1881, Philadelphia, Cape Town, Paris, &c. Contractors to H. M. Post Office, Colonial Telegraphs, Indian and English Railways, &c. *See index to advertisers.*

Terey, Charles A., 114, Lambeth-road, S.E.

Digitized by Google

Electric Specialities Manfs.—*continued.*

Willing & Co., 366, Gray's-inn-road, W.C.

WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. Inventions carried out and experiments made. *See index to advertisers.*

Electric Toys.

F.—Jouets électriques.

G.—Electrische Spielzeug.

MEDLAND, J. B., 12, Borough, London Bridge, S.E.

Electric Tramways.

F.—Tramways électriques.

G.—Electrische Strassenbahnen.

Siemens Bros. and Company, Limited, 12, Queen Anne's-gate, Westminster, S.W.

Electric Transmission of Power.

F.—Transmission électrique de puissance.

G.—Gesellschaften für electrische Transmission der Kraft.

Anglo-American (Brush) Electric Light Corporation (Limited), 108, Belvedere-road, Lambeth, S.E. *See index to advertisers.*

Apps, A., 433, Strand, W.C. *See index to advertisers.*

BINSWANGER, G. & CO., 33, Aldermanbury, E.C.

BIRMINGHAM AND WARWICKSHIRE (BRUSH) ELECTRIC LIGHT & POWER CO., LIMITED, 110, Cannon-st., E.C.

GENERAL ELECTRIC APPARATUS CO., 33, Aldermanbury, E.C.

GULCHER ELECTRIC LIGHT & POWER CO., 121, Bishopsgate-st., Within, E.C. *See index to advertisers.*

HAMMOND ELECTRIC LIGHT & POWER SUPPLY CO., 110, Cannon-st., E.C.

India Rubber, Gutta Percha and Telegraph Works Co., Limited, 106, Cannon-st., E.C.

LONDON & PROVINCIAL ELECTRIC LIGHTING & POWER GENERATING CO., LIMITED, 21, Great Winchester-st., Old Broad-st., E.C. *See index to advertisers.*

METROPOLITAN (BRUSH) ELECTRIC LIGHT & POWER CO., LIMITED, 110, Cannon-st., E.C.

ORME, J. & CO. (late M. Jackson & Co.) 65, Barbican, E.C.

Siemens Bros. & Co., Limited, 12, Queen Anne's-gate, Westminster, S.W.

Woodhouse & Rawson, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Electric Writing Apparatus Makers.

F.—Appareils électriques écrivants (Fab. d').

G.—Electrische Schreib-Apparate.

EDISON ELECTRIC PEN & WRITING AGENCY, 138, Fenchurch-st., E.C.

Electric Writing Co. (The), 1, King's-arms-yard, Coleman-st., E.C.

Electrical Condensers Manufacturers.

F.—Condensateurs électriques.

G.—Electrische Condensatoren.

ELECTRICAL TRADING CO., 2, Victoria-mansions, Westminster, S.W. *See index to advertisers.*

Electrical Instrument Makers.

F.—Appareils électriques.

G.—Electrische Instrumente.

Apps, A., 433, Strand, W.C. *See index to advertisers.*

Baudot, Cloris, 90, Rue Saint Victor, Paris. *See index to advertisers.*

BECKER, F. E. & CO., 34, Maiden-lane, Covent-garden, W.C.

Bell, A., 175, Wardour-st., W.

Berry, F. H., 8, Percival-st., Clerkenwell, E.C.

Binko, Siegel & Co., 12, Coleman-street, E.C. *See index to advertisers.*

BRITISH ELECTRIC LIGHT CO., Heddon-st., W. *See index to advertisers.*

Casella, L., 147, Holborn-bars, E.C.

CLARK, L. MUIRHEAD & CO., 23, Regency-st., Westminster, S.W.

Coiffier, A., 56, Hatton-garden, E.C.

CONTI, A. E., 26A, Smith-st., Northampton-sq., E.C. *See index to advertisers.*

Coxeter, J. & Son, 23, Grafton-st. East, Tottenham-court-road, W.C.

Crampton, T. & Co., 251, High Holborn, W.C.

DALE, H. & E. J., 4, Little Britain, E.C., and 26, Ludgate-hill, E.C. *See index to advertisers.*

Darlow & Co., 443, West Strand, W.C.

Darton, F. & Co., 45, St. John-st., E.C.

Didier, A., 10, Berkeley-gardens, Kensington, W.

Downs, T. & Son, 192, Bethnal-green-road, E.

DRING & FAGE, 145, Strand, W.C.

Duplex Electric Light, Power and Storage Co., Limited, 9, Soho-square, W. *See index to advertisers.*

ELECTRICAL TRADING CO., LIMITED, 2, Victoria-mansions, Westminster, S.W. *See index to advertisers.*

ELECTRIC LIGHTING SUPPLY & FITTING CO. (THE), 1, Victoria-mansions, Victoria-st., Westminster, S.W. *See index to advertisers.*

ELLIOTT BROS., 449, West Strand, and 101, St. Martin's-lane, W.C.

Everall, John, 229B, Camberwell-road, S.E.

Ferrans, Francis H. & Co., Trafalgar Works, Trafalgar-road, Old Kent-road, S.E.

Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.

General Electric Apparatus Co. (The), 33, Aldermanbury, E.C.

Gilson, D., 44, Forston-st., Hoxton, N.

GROVES, WM., 89, Bolsover-st., Fitzroy-sq., W.

Harvey & Peak (Successors to W. Ladd & Co.), Beak-st., Regent-st., W.

Horne & Thornthwaite, 416, Strand, W.C.

Digitized by Google

Electrical Instrument Makers—*continued.*

India-Rubber, Gutta-Percha & Telegraph Works Co., Limited, 106, Cannon-st., E.C.
Insulate Co., Limited (Frederick Sanders, Secretary), 11, Delahay-st., Westminster, S.W.
IZANT, F., 50, Kenton-st., Brunswick-sq., W.C.
KOERBER, J. A., 44, Frith-st., Soho, W.
Lejeune & Perken, 101, Hatton-garden, E.C.
LEVI, J. & CO., 40, Castle-st., Holborn (Wholesale), and 2, Dyer's-buildings, E.C.
LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C., 34, Rue d'Hauteville, Paris, & 42, Rue de Ruysbroeck, Brussels.
MAYFIELD, J. T., 41, Queen Victoria-st., E.C. Induction Coils, Vacuum Tubes, Sets of Induction Coil Apparatus, Galvanometers, Dynamo Machines, and all descriptions of Electric Light Apparatus, Medical Apparatus, Magnets, Telegraph Instruments, &c. Quotations given, and any size made to order.
Medland, J. B., 12, Borough, London-bridge, S.E.
Neeves, R. W., 55, Sidmouth-st., Gray's-inn-road, W.C.
Negretti & Zambra, Holborn-viaduct, E.C.
Oakley, W. H. & Co., 202, Grange-road, S.E.
Patent Plumbago Crucible Co., Battersea Works, Church-road, Battersea, S.W.
PATERSON & COOPER, 76, Little Britain, E.C. *See index to advertisers.*
Pulvermacher, J. L. & Co., 194, Regent-st., W.
Reid Bros., 12, Wharf-road, City-road, N. *See index to advertisers.*
Robinson, T. J., Helmet-court, 338, Strand, W.C.
Sax, Julien, 108, Great Russell-st., W.C.
SCHOTH, G. A., 232, Euston-road, N.W.
Siemens Bros. & Co., Limited, 12, Queen Anne's-gate, S.W.
Simmons, C. J., 56, Leverton-st., N.W.
Société des Lunetiers, 56, Hatton-garden, E.C.
Stevens, F. A., West Smithfield, E.C. *See index to advertisers.*
Theiler M. & Sons, 86, Canonbury-road, N.
Thistleton, J. B., 1, Old Quebec-st., W.
Tisley, S. C. & Co., 172, Brompton-road, S.W.
Townson & Mercer, 89, Bishopsgate-st. Within, E.C.
WHITING, HENRY GOTHWICKE, A.P.S., M.S.A., 11, Poultry, E.C.

Electrical Sundries Manufacturers.

F.—Appareils divers électriques (Fab. d').

G.—Verfertiger von electrischen Artikeln.

Apps, A., 433, Strand, W.C. *See index to advertisers.*
CHALLIS BROS., Bushberry Works, Sidney-road, Homerton, E. *See index to advertisers.*
Electric Agency, 20, Great St. Helen's, E.C.
GULCHER ELECTRIC LIGHT & POWER CO., 121, Bishopsgate-st. Within, E.C. *See index to advertisers.*
India-Rubber, Gutta-Percha & Telegraph Works Co., Limited, 106, Cannon-st., E.C.

Electrical Sundries Manfs.—*continued.*

LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C., 34, Rue d'Hauteville, Paris, & 42, Rue de Ruysbroeck, Brussels.
LONDON & PROVINCIAL ELECTRIC LIGHTING & POWER GEN. CO., LIMTD., 21, Great Winchester-st., Old Broad-st., E.C. *See index to advertisers.*
Medland, J. B., 12, Borough, London-bridge, S.E.
Railway & Electrical Appliances Co., Limited (A. Duff, manager), 31, Lombard-st., E.C. Manufacturers of Electrical Appliances.
ROBEY, JOHN THOMAS, 194, Bow-road, E. Patent Lead Burners and Chemical Burners.
STOPES & CO., ENGINEERS, GENERAL AGENTS, &c., ELECTRICAL HEAT REGULATORS, & POWER TRANSMITTERS FOR MALTINGS, BREWERIES, &c., 24A, SOUTHWARK-ST., S.E.

Electrical Sundriesmen.

F.—Appareils divers électriques.

G.—Händler in electrischen Artikeln.

Gearron, H., 353, Old Kent-road, S.E. Dealer in Secondhand Machines.
Medland, J. B., 12, Borough, London-bridge, S.E.

Electrical Testing Instrument Makers.

F.—Appareils d'essai électriques.

G.—Probirinstrumente für Electricität.

Conti, A. E., 26A, Smith-st., Percival-st., Goswell-road, E.C. *See index to advertisers.*
Elliott Bros., 191, St. Martin's-lane, W.C.
Groves, W., 89, Bolsover-st., W. Professor Hughe's Induction Balance.
Simmons, C. J., 56, Leverton-st., Leighton-road, Kentish Town, N.W. For Land and Marine Service, Galvanometers, Resistance Coils, Condensers, Keys, Switches, &c. *See index to advertisers.*

Electricians.

F.—Electriens.

G.—Electricitäts-kundige.

Andrews, Joseph, 25, Warwick-road, Earl's Court-road, S.W.
Baker, Daniel, 90, St. John-st.-road, E.C.
Beasley, Ilsyd T., M.E., 92, Netherwood-road, West Kensington-park, W.
Berry, F. H., 18, Percival-st., Clerkenwell, E.C.
Bell, Robert A., M.E., 92, Netherwood-road, West Kensington-park, W.
British Electric Light Co., Limited, 76, Turnmill-st., Clerkenwell, E.C.
Dale, H. & E., 4, Little Britain, E.C.
Didier, A., 10, Berkeley-gardens, Kensington, W.

Digitized by Google

Electricians—Consulting—*continued.*

H., 48, Hindon-st., Pimlico, S.W.
n Manufacturing Co., Atlas Works, Webber-st., New-cut, S.E.
Faulkner, Bedford & Co., 16, Endell-st., W.C.
Ferranti, Thompson & Ince, Limited, 3, Fenchurch-avenue, E.C.
French, A. St. Geo. & Co., 21, Finsbury Pavement, E.C.
Fynn & Carle, 22, Pigott-st., E.
Gray, John W. & Son, 58, Fenchurch-st., E.C.
Greener, J. H., 14, St. Swithin's-lane, E.C.
Hannington, G. H., 42, Spencer-st., E.C.
Harvey & Peak, 11A, Beak-st., Regent-st., W.
Heap, Chas. Richard, 2, Scott's-yard, E.C.
Hintz, Julius, 30, Liverpool-st., E.C.
Jones, Thomas John, 12, Princes-st., Hanover-square, W.
McEvoy, Capt. Chas. A., 18, Adam-st., Adelphi, W.C.
New, John Wm., 44, Dean-st., Soho, W.
Paterson & Cooper, 76, Little Britain, E.C.
Patrick & Son, 529, King's-road, S.W.
Tiddy, Wm. N., 12, Princes-st., Hanover-sq., W.
Wigner & Harland, 37, Lombard-st., E.C.

Electricians—Consulting.

F.—Electricians.

G.—Electricitätskundige.

Adams, Professor W. Grylls, F.R.S., Physical Laboratory, King's College, W.C.
Anglo-American (Brush) Electric Light Corporation, Ld., 108, Belvedere-road, Lambeth, S.E.
Apps, A., 433, West Strand, W.C. *See index to advertisers.*
Barlow, W. H., 2, Old Palace-yard, S.W.
BERLY, J. A., 16, New Bridge-st., E.C. *See index to advertisers.*
BIRMINGHAM & WARWICKSHIRE (BRUSH) ELECTRIC LIGHT & POWER COMPANY, LIMITED, 110, Cannon-st., E.C.
Brittan & Foreman, 21, Hormes-st., Pentonville-road, N.
Brown, F., 44, Upper George-st., Bryanstone-square, W.
BROWNE, NEWNHAM (Patent Agent), 91, Queen-st., Cheapside, E.C.
Cooke, Conrad W., 5, Westminster-chambers, Victoria-st., S.W.
COOPER, CHARLES FRIEND, 76, Little Britain, E.C. *See index to advertisers.*
Crawford & Balcarres, Earl of, 47, Brook-st., W.
Darlow & Co., 443, West Strand, W.C.
Edison Electric Pen & Writing Agency (The), 140, Fenchurch-st., E.C.
Edmundson, J. & Co., 19, Great George-st., Westminster, S.W.
ELECTRIC LIGHTING & GENERAL AGENCY COMPANY (J. Glew, Manager), Crown-buildings, 79, Queen-st., E.C.
ELLIOTT BROS., 101, St. Martin's-lane, W.C.
Ellis, W., Royal Observatory, Greenwich, S.E.

Electricians—Consulting—*continued.*

Foster, Professor G. C., 12, Hilldrop-road, Brecknock-road, N.
Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., & Lawford-road, N.W.
Frost, A. J., 6, Westminster-chambers, Victoria-st., S.W.
Fuller, J. C. & Son, Newcastle Wharf Works, Old Ford-road, Bow, E.
GALTON, CAPT. D., 12, Chester-st., Grosvenor-place, W.
GARNHAM & CO., Sash-court, Wilson-st., Finsbury, E.C.
GARRATT, B. C., 16, Finsbury-square, E.C. *(See Medical Electricians).*
Gatehouse, T., Electrical Review, 10, Paternoster-row, E.C.
General House Appliance Manufacturing Company, 42, Vauxhall-bridge-road, S.E.
Glover, T. G., Col. R.E., Stapenhill, Sydenham-hill, S.E.
Gray, M., 106, Cannon-st., E.C.
GULCHER ELECTRIC LIGHT & POWER COMPANY, 121, Bishopsgate-st., Within, E.C. *See index to advertisers.*
Gutta Percha Company (The), 18, Wharf-road, City-road, N.
HAMMOND ELECTRIC LIGHT & POWER SUPPLY COMPANY, 110, Cannon-st., E.C.
Harling & Hartmann, 3, Orchard-buildings, Acton-st, Kingsland, E.
Hughes, Professor D. E., care of London Joint Stock Bank, 92, Pall Mall, S.W.
HUMM, M., 727, Commercial-road, E.
India Rubber, Gutta Percha & Telegraph Works Company, Limited, 106, Cannon-st., E.C.
JARMAN, A. J., 25, Richmond-st., St. Lukes, E.C.
Johnson & Phillips, 14, Union-court, Old Broad-st., E.C. *See index to advertisers.*
Johnston & Co., 189, Wardour-st., W.
Kieser, Messrs. Elliott Bros., 101, St. Martin's-lane, W.C.
Koerber, J. A., 44, Frith-st., Soho, W.
Lobb, H., 66, Russell-square, W.C.
LONDON & PROVINCIAL ELECTRIC LIGHTING & POWER GENERATING COMPANY, LIMITED, 21, Great Winchester-st, Old Broad-st, E.C. *See index to advertisers.*
LUNDS', J. A., 41, Cornhill, E.C.
McEVOY, CAPTAIN CHARLES A., 18, Adam-st., Adelphi, W.C.
Mathieson, J. J., 18, Adam-st., Adelphi, W.C.
Mathieson, J., India Rubber Company, Silvertown, E.
MAYFIELD, J. T., 41, Queen Victoria-st., E.C.
Muirhead, Dr. A., Oakwood, 12, Farquhar-road, Upper Norwood, S.E.
Newall, R. S. & Co., 130, Strand, W.C.
Piggott, W. P., 16, Argyll-st., Regent-st., W.
Preece, W. H., Gothic Lodge, Wimbledon, S.W.
Reid Bros., 12, Wharf-road, City-road, N.
REYNOLDS, W. T., Ph.D., 2, St. Helen's-terrace, Mile End-road, E.

Digitized by Google

Electricians—Consulting—*continued.*

ROGERS, F. M., 21, Finsbury-pavement, E.C. Consulting Electrician. *See index to advertisers.*
Sabine, R., Grosmont-house, Hampton-wick, Middlesex.
ST. GEORGE, A. FRENCH, 21, Finsbury-pavement, E.C.
Sax, Julius, 108, Great Russell-st., W.C.
Siemens, Dr. C. W., 12, Queen Anne's-gate, S.W.
Siemens Bros. & Co., Limited, 12, Queen Anne's-gate, S.W.
Society of Telegraph Engineers & of Electricians, 4, The Sanctuary, Westminster, S.W. *For List, &c., see Contents.*
Spiller, Geo. 3, Wigmore-st, Cavendish-sq., W.
Stroh, A., 98, Haverstock-hill, N.W.
THISTLETON, J. B., 1, Old Quebec-st., W.
Ward, M. R., 7, Northumberland-st., Trafalgar-square, W.C.
WENDERMANN, R., 13, Princes-st., Cavendish-square, W.
Weston, G. & Co., 92, Mile End-road, E.
WHITING, HENRY GOTHWICKE, A.P.S. & M.S.A., 11, Poultry, E.C.
Willard, F. L., 85, Hoxton-st., N.
WILLARD, F. L., 25, Richmond-st., St. Luke's, E.C.
Woodhouse & Rawson, 11, Queen Victoria-st., E.C. *See index to advertisers.*
Zanni, D., 21, Charles-st., Hatton-garden, E.C.
Zanni & Co., 47, Holborn-viaduct, E.C.

Electricians—Manufacturing.

F.—Machines électriques (Fab. de).
G.—Fabrikanten von electrischen Apparaten.

DALE, H. & E. J., 4, Little Britain, E.C., & 26, Ludgate-hill, E.C. *See index to advertisers.*
LEVY, ARMAND, 252, Goswell-road, London, E.C., 42, Rue d'Hauteville, Paris, & 42, Rue de Ruysbroeck, Brussels. Electrical Sundriesman. Construction of all classes of Machines. Inventions carried out.
ORME J. & CO. (late M. Jackson & Co.), 65, Barbican, E.C.
PATERSON, EDWARD, 76, Little Britain, E.C. *See index to advertisers.*
Theiler, M. & Sons, 86, Canonbury-road, N.

Electricians—Medical.

F.—Electricité—médicale.
G.—Electrotherapie.

GRIGG, W., Latimore-ho., Maidenhead, Berks, & 34, Eastbourne-terrace, W. Electro-Magnetic Therapeutic Establishment, Paddington, & Sanitorium for the cure of Chronic Diseases believed to be incurable, many living witnesses, lives positively saved by it. Testimonials free. *See index to advertisers.*

Electric Switch Manufacturers.

F.—
G.—Electrische Weichen.—Fabr.

Duplex Electric Light, Power & Storage Co., Limited, 9, Soho-square, W. *See index to advertisers.*
Martin, A., 54, Percival-st., Clerkenwell, E.C. *See index to advertisers.*

Electro Gilders and Platers.

See Platers.

Electro-Motor Manufacturers.

F.—Electro moteurs (Fab. d').
G.—Electrische Motors.

Anglo-American (Brush) Electric Light Corporation (Limited), 108, Belvedere-road, Lambeth, S.E. *See index to advertisers.*
Apps, A., 433, Strand, W.C. *See index to advertisers.*
BINSWANGER, G. & Co., 33, Aldermanbury, E.C.
BIRMINGHAM and WARWICKSHIRE (BRUSH) ELECTRIC LIGHT & POWER CO. (Limited), 110, Cannon-st., E.C.
CROMPTON, R. E. 4, Queen Victoria-st., E.C. (The Bürgin.) *See index to advertisers.*
DALE, H. & E. J., 4, Little Britain, E.C., and 26, Ludgate-hill, E.C. *See index to advertisers.*
Duplex Electric Light, Power & Storage Co., Ld. 9, Soho-square, W. *See index to advertisers.*
ELECTRIC LIGHTING SUPPLY AND FITTING CO. (THE), 1, Victoria-mansions, Victoria-st., Westminster, S.W. *See index to advertisers.*
ELECTRICAL TRADING CO., 2, Victoria-mansions, Westminster, S.W. "Boy's" patent meters. *See index to advertisers.*
ELECTROLYTIC CO. (The), Charlotte-st. Blackfriars, S.E. *See index to advertisers.*
HAMMOND ELECTRIC LIGHT & POWER SUPPLY CO,, 110, Cannon-st., E.C.
HEAP, C. R., agent for The Electro-Dynamic Co. of Philadelphia (Griscom's system), 2, Scott's-yard, Bush-lane, Cannon-st., E.C. *See index to advertisers.*
Howe Machine Co. (Limited), 46 & 48, Queen Victoria-st., London, E.C.; Avenue-st., Bridgeton, Glasgow.
India Rubber, Gutta Percha, & Telegraph Works Company (Limited), 106, Cannon-st., E.C.
Woodhouse & Rawson, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Electro-Plate Manufacturers & Dealers.

F.—Plaqué (Fab. et Marchands de).
G.—Galvanische Versilberer.

Adkins, H. & Sons, 4, Thavie's-inn, E.C.
Andrews & Co., 71, Tottenham-court-road, W.
Atkins Bros., 11, Charterhouse-st., E.C.
Biggs, F. J., 19, Gracechurch-st., E.C.

Digitized by Google

Electro-Plate Manfs. & Dlrs.—*continued.*

Blewitt, E., 69, Hatton-garden, E.C.
Bourne & O'Neil, 9, Fenchurch-st., E.C.
Brewitt, J., 21, George-st., Euston-road, N.W.
Briddon Bros., 17, Ely-place, Holborn, E.C.
Carrington & Co., 130, Regent-st., W.
Chapman, J., 28, Almorah-road, Islington, N.
Claydon, J. & Co., 4, Angel-lane, Stratford, E.
Creswick & Co., 17, Craven-st., Strand, W.C.
Deane & Co., 46, King William-st., E.C.
Eels, F., 11, Clerkenwell-green, E.C.
Elkan, J., 135, Strand, W.C.
Elkington & Co., 42, Moorgate-st., E.C.
Fairbairns, W. & Sons, 65, St. Mary-axe, E.C.
Favell, R. & F., Bucknall-st., New Oxford-st., W.C.
Gilbert, J. & Co., Limited, 25, Ely-place, Holborn, E.C.
Goodfellow & Son, 29, Hatton-garden, E.C.
GREENE, H. & Son, 153, Cannon-st., E.C. *See index to advertisers.*
Grinsell, J. & Sons, Ely-house, 13, Charterhouse-st., E.C.
Hand & Son, St. Mary-chmbr., St. Mary-axe, E.C.
Harrison, J. & Co., Limited, 5, Garrick-st., W.C.
Harrison, W. W. & Co., 99, Hatton-garden, E.C.
Harwood, Son, & Harrison, 22, Bedford-st., W.C.
Hill & Co., 3, Bridge-st., Westminster, S.W.
Hobson, H. & Son, 67, Houndsditch, E.
Hodd, R. & Son, 30, Hatton-garden, E.C.
Hukin & Heath, 19, Charterhouse-st., E.C.
Hutton, W. & Sons, 13, Thavie's-inn, Holborn-circus, E.C.
Hyam, D. & Co., 58, Houndsditch, E.
Koch & Bergfeld, 18, Finsbury-circus, E.C.
Lewis, R. A. & Co., 10, Dyer's-buildings, Holborn, E.C.
Light, E., 15A, Lime-st., E.C.
Manufacturing Goldsmiths' & Silversmiths' Co., 112, Regent-st., W.
Mappin Brothers, 67, King William-st., E.C.
Mappin & Webb, 158, Oxford-st., W.
Mortlock, J. & Co., 466, Oxford-st., W.
Neal, J., 44, Edgware-road, Marylebone, W.
NOWILL, J. & SONS, 32, Hatton-garden, E.C.
Owen Brothers, 2, Devonshire-square, Bishopsgate-st., E.
Parkin & Marshall, 68, Cornhill, E.C.
Peacock, C. G., 1, Bishopsgate-st. Without, E.
Prime, T. & Sons, 5, Charterhouse-st., E.C.
Pringle R. & Co., 42, Clerkenwell-road, E.C.
Radclyffe, H. G., 58, Frith-st., Soho, W.
Richardson, R., 28, Holborn-viaduct, E.C.
Robarts & Belk, 24, Holborn-viaduct, E.C.
Saunders, A., 10, Ludgate-hill, E.C.
Sewell, J. & Charles J., 49, Fore-st., E.C.
Simpson, Hall, Miller & Co., 81, Queen Victoria-st., E.C.
Smith S. & Son, 35, King-st., Covent-garden, W.C.
Spurrier, W., Limited, Wool Exchange, Coleman-st., E.C.
Walker & Hall, 45, Holborn-viaduct, E.C.
Wheaton & Bennett, 104 to 108, Oxford-st., W.
White, T., 133, New Bond-st., W.
Wilson & Davis, 10, Hatton-garden, E.C.

Electro-Platers' and Electrotypers' Plant and Material Manufacturers.

F.—Plaqué (Fournitures pour).
G.—Alfenide und Galvanoplastik—Materialien für Fabrikanten.

ELECTROLYTIC CO. (THE), Charlotte-st., Blackfriars, S.E. *See index to advertisers.*

Electro Plating and Depositing Machine Makers.

F.—Machine pour dorure, argenture et galvanoplastie (Fab. de).
G.—Maschinen zum Versilbern.

BIRMINGHAM AND WARWICKSHIRE, (BRUSH) ELECTRIC LIGHT & POWER COMPANY, LIMITED, 110, Cannon-st., E.C.
ELECTROLYTIC CO. (THE), Charlotte-st., Blackfriars, S.E. *See index to advertisers.*
HAMMOND ELECTRIC LIGHT & POWER SUPPLY COMPANY, 110, Cannon-st., E.C.
LEVY, ARMAND, Électrical Sundriesman, 252, Goswell-rd., London, E.C.; 34, Rue d'Hauteville, Paris; and 42, Rue de Ruysbroeck, Brussels. Importer of Foreign Machines.
Woodhouse & Rawson, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Electrolier, Lamp, Lustre &c. Manufacturers.

F.—Electroliers (Fab. d').
G.—Candalaber für Electrische Lampen.

Abbott Bros., 22, Dean-st., Soho, W.
Albion Lamp Co., 69, Hatton-garden, E.C.
Barclay & Son, 138, Regent-st., W.
Barclay, Son & Co., 11, Wigmore-st., W., and 138, Regent-st., W.
Benjamin, Philip, 25A, Hatton-garden, E.C.
Berry, Z. D., & Sons, 16, Regency-st., Westminster, S.W.
Besson, F., & Co., 198, Euston-road, N.W.
Biggs, John, 34 & 102, Borough-road, S.E.
Boseck, Paul, 14, South-st., Finsbury, E.C.
Brecknell, Turner & Sons, 31 & 32, Haymarket, S.W.
Brignall, Geo. Frederick, 144, Newington-butts, S.E.
Brown & Co., 186, Piccadilly, W.
Burroughes & Watts, 19, Soho-square, W.
Catterson, Samuel Prince, 34 & 36½, Gt. Dover-st., S.E.
Clerc, Léon, 48, Commercial-st., E.
Cohen, D., 8 & 9, Chiswell-st., E.C., and 63, Bishop's-road, Bayswater, W.
Cooper, William, & Son, 65, St. Mary Axe, E.C.
Davis, Charles John, 120, Newington Causeway, S.E.
Davis, Moses, & Co., 27, Wellclose-square, E.
DEFRIES & SONS, 147, Houndsditch, E. *See index to advertisers.*
Deville & Co., 23, New-st.-square, E.C.
Dietz & Co., St. Paul's-buildings, Carter-lane, Cannon-st., E.C.

Digitized by Google

Electrolier, Lamp, &c., Manfs.—*continued.*

Earl & Philp, 113, London Wall, E.C.
Electric Lighting Supply and Fitting Company, Limited, 1, Victoria-mansions, Westminster, S.W. Manager W. Bridges Adams. *See index to advertisers.*
Stores—Dacre-st. } Westminster, S.W.
Works—York-st. }
English Lamp Company, 59, Mark-lane, E.C.
Evered, R., & Co., Limited, 27, Drury-la., W.C.
Fairbairns, W. & Sons, 65, St. Mary Axe, E.C.
Faraday & Son, 3, Berners-st., W.
Forrest, G., & Son, 23, New-st.-square, E.C.
Fowles, Thomas, & Co., 200, Ebury-st., S.W.
Gardners, 453, Strand, W.C., & 4 & 5, Ducannon-st., W.C.
GREENE, H., & SON, 153, Cannon-st., E.C. *See Index to advertisers.*
Green, Jas., & Nephew, 107, Queen Victoria-st., E.C.
Grimes, Thomas Richard, 83, New Bond-st., W.
Greiner & Co., 81, Queen Victoria-st., E.C.
GULCHER ELECTRIC LIGHT & POWER COMPANY, 121, Bishopsgate-st. Within, E.C. *See index to advertisers.*
Halls, Chas. Ellis, 74, St. George-st., E.
Hancock, Isaac, 4, St. Leonard's-road, East India Dock, E.
Hancock & Rixon, 47, Great Marlborough-st., Poland-st., W.
Harris, Charles, 25, Berwick-st., Oxford-st., W.
Hart, Son, Peard & Co., 53, 58, Wych-st., W.C.
Haskell & Co., 411, Oxford-st., W.
Hinrichs, C. F. A., 42 & 44, Cannon-st., E.C.
Hirschhorn, J., 81, Queen Victoria-st., E.C.
Hodge & Co., 100 & 101, Hatton-garden, E.C.
HOLBORN LAMP WORKS, 116, High Holborn, W.C. Manufacturers of all kinds of reflecting lamps for Shop windows.
Honey, Wm. Henry, 261 & 263, Regent-st., W.
Hughes, Henry, & Son, 59, Fenchurch-st., E.C.
Hughes, Rich. Hugh, 96, Hatton-garden, E.C.
HULETT, D., & COMPANY, Sole makers of the BERLY & HULETT patent sliding contact suspension, applicable to every system of Electric Lighting, 55, High Holborn, W.C. *See index to advertisers.*
Hus, Henry, 323B, Kennington-road, S.E.
Ingram & Kemp, 103, Hatton-garden, E.C.
Jeal, John & Wm., 80 and 82, Old-st., E.C.
Jones & Willis, 43, Great Russell-st., W.C.
Joseph Bros., 271, Liverpool-road, N.
Joyner, Chas. & Co., 84, Great Tower-st., E.C.
Kaester & Toebelmann, 14, South-st., Finsbury, E.C.
Kaye, Joseph & Co., 248, High Holborn, W.C.
Kelly, Alex., 59, Mark-lane, E.C.
Kempton, Chas. Henry, 57, Vauxhall-walk, S.E.
Kiesow (August) & Co., 18, Finsbury-circus, E.C.
Kitchen, Wm., 35, Phœnix-st., Somers Town, N.W.
Koeppen & Wenke, St. Mary's-chambers, St. Mary Axe, E.C.
Kuhne Gebrüder, 47, Basinghall-st., E.C.

Electrolier, Lamp, &c., Manfs.—*continued.*

Laidlaw, R. & Son, 6, Little Bush-lane, E.C.
Laing, White & Wharton, 8 & 9, Holborn-viaduct, E.C. *See index to advertisers.*
LONDON & PROVINCIAL ELECTRIC LIGHTING & POWER GENERATING CO., Limited, 21, Great Winchester-st., Old Broad-st., E.C. *See index to advertisers.*
Lotz, Abbott & Co., 20, Barbican, E.C.
Manger, Wm. & Co., 126, Piccadilly, W.
Mappin & Webb, 158 to 162, Oxford-st., W.
Marshall, Wm. & Co., 4, Botolph-lane, E.C.
Meynell and Inman, 132, Upper Thames-st., E.C.
Miller, Edward & Co., 81, Queen Victoria-st., E.C.
Miller & Sons, 178 & 179, Piccadilly, W.
Minago, Gustave, 21, Guildford-st. East, Wilmington-square, W.C.
Moenich, Oscar & Co., 8, Coleman-st., E.C.
Moore & Co., 2, Judd-st., W.C.
Mortlock, J. & Co., 466, Oxford-st., W.
Mortlock, Wm. & Fredk., 19, St. James'-st., S.W.
Mountford, James Seba & Co., 11, Silk-st., Cripplegate, E.C.
Napper, Sidney, 9, Fenchurch-st., E.C.
Nelson, Wm., jun., 38, Kennington-road, S.E.
Oliver, G. & J., 19, London-st., E.C.
OSLER, F. & C., 100, Oxford-st., W.
Palmer & Co., Little Sutton-st., Clerkenwell, E.C.
Panklibanon Furnishing Ironmongery Co., 56 and 58, Baker-st., W.
Pennycad, John Wm., 5, Mile End-road, E.
Perry & Co., 72, New Bond-st., W.
Phillips, W. P. & G., 155, New Bond-st., W.
Philp, Chas. J. & Son, 23, New-st.-square, E.C.
Pillischer, Moritz, 88, New Bond-st., W.
Pontifex, Samuel & Co., 22, Coleman-st., E.C.
Powell, James & Sons, Temple-st., Whitefriars, E.C.
PRINCE & SYMMONS, 128, 130, Commercial-st., E.
Ratcliff, Edmund, 292, High Holborn, W.C.
Rothwell, Peter, 78, Hampstead-road, N.W.
Russell, John & Co., 145, Queen Victoria-st., E.C.
Schlesinger, A. & Co., 8, Coleman-st., E.C.
Smidt & Jacdicke, 210, Gresham House, E.C.
Sigrist, Richard, 30, Tustin-st., Old Kent-rd., S.E.
Silber Light Co., 49, Lower Whitecross-st., E.C.
Soane & Smith, 462, Oxford-st., W.
South Kensington China, Glass & Lamp Co., 4, Colcherne-terrace, Richmond-road, S.W.
Stobwasser, C. H. & Co., 31, Camomile-st., E.C.
Stuart & Mills, 89, Hatton-garden, E.C.
Thornelow & Co., 57, Barbican, E.C.
Tilley, Wm. Henry, 53, Kingsland-road, E.
Tomlinson & Rettich, 34 & 35, Gerrard-st., W.
Tucker & Son, 23, New-st.-square, E.C.
Ungar, Julius & Co., 52, Commercial-st., E.
Unger, F. & Co., 20, Hatton-garden, E.C.
Vaughan & Brown, 16, Kirby-st., E.C.
Venice & Murano Glass & Mosaic Co., Limited, 30, St. James'-st., S.W.
Voetters, C. Soehne, 9, New Broad-st., E.C.

Digitized by Google

Electrolier, Lamp, &c., Manfs.—*continued.*

Wagner & Goldschmidt, 14, South-st., Finsbury, E.C.
Weston Bros., 19, Cross-st., Hatton-garden, E.C
Whiteley, Wm., 31-55, and 61, Westbourne-grove, W.
Wiggins & Rihll, 157, Fenchurch-st., E.C.
Wild & Weesel, 20, Little Trinity-lane, E.C.
Willmore Brothers, 140, Brompton-road, S.W.
WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. Stock kept, samples and drawings supplied for special work. *See index to advertisers.*
Wright & Butler, 68, Commercial-st., E.
Wright & Fletcher, 1 & 2, Australian-avenue, E.C.
Wright, John & Co., 1, Little Bush-lane, E.C.
Wyatt, Thomas, 11, Neal-st., Long Acre, W.C.
VERITY, B. & SONS, 31 & 32, King-st., Covent-garden, W.C.
Young's Paraffin Light and Mineral Oil Co., 70 & 71, Bishopsgate-st. Within, E.C.
Zimmermann & Co., 21, Red Lion-square, W.C.

Electrotypers.

F.—Electrotype.
G.—Galvaniseure.

Bullen, T. E. H., 28, Warwick-lane, E.C.
Butler & Tanner, 18, Paternoster-square, E.C.
Cattell, A. S., & Co., 28, Farringdon-st., E.C.
DAVIES, HENRY G., 4, New Bridge-st., E.C.
Dawson, A. & Wm., 23, Farringdon-st., E.C.
Dellagana & Co., 48, Fetter-lane, E.C.
Dorrington, A. R., & Co., 8, Stanhope-st., Strand, W.C.
ELECTROLYTIC CO. (THE), Charlotte-st., Blackfriars, S.E. *See index to advertisers.*
Electrotype Agency, 31, Paternoster-square, E.C.
Godfrey & McCall, 3, Newcastle-st., Farringdon-st., E.C.
Green, W., 4, Great Vine-st., Regent-st., W.
Hare, T. M., & Co., 31, Essex-st., W.C.
Hukin & Heath, 19, Charterhouse-st., E.C.
Knight & Hawkes, 13, Clerkenwell-close, E.C.
Manning & Son, 28, Old-st., Aldersgate, E.C.
PLUMMER, F., & CO., 1 & 2, Goldsmith's-court, Great New-st., Fetter-lane, E.C.
Richardson, Koolman & Isger, Harp-alley, Farringdon-st., E.C.
Robinson & Co., 151, High Holborn, W.C.
Sharrow & Anderson, 5, West-st., Seven-dials, W.C.
Silverlock, H., 92, Blackfriars-road, S.E.
Stinson, R., Yates & Co., 1, McLean's-bgs, E.C.
Typographic Etching Company, 23, Farringdon-st., E.C.
Watts, C. F., 21, Paternoster-square, E.C.
Welch, W. J., 25, Wellington-st., Strand, W.C.

Emery Wheel and Machinery Makers.

F.—Roues et machines à emeri (Fab. de).
G.—Schmirgelräder.

Beekman & Co., 4, South-place, Finsbury, E.C.
Edwards, R. J. & Co., Charles-st., Curtain-road, E.C.
Emery Genuine Maxos Co., 23, Crutchedfriars, E.C.
Monninger, C. D., Farringdon-road, E.C.
Orme, Frederick & Co., 9, St. Andrew's-st., E.C.
SELIG, SONNENTHAL & CO. ("Eclipse"), 85, Queen Victoria-st. *See index to advertisers.*
Standard Emery Wheel Co., 13, Greek-st., Soho, W.
Sterne, L. & Co., Limited, 10, Victoria-chambers, Westminster, S.W. *See index to advertisers.*

Enamellers (of Glass or Iron).

F.—Emailleurs (de verre ou fer).
G.—Emailleure.

DEFRIES, J., & SONS, 147, Houndsditch, E. *See index to advertisers.*
Email & Metallwaaren Fabrik Zug (Hund Bros.), 81, Queen Victoria-st., E.C.
Enamel Sign Co., 6, Devonshire-square, E.C.
Scott, Gilderoy, Wilson & Sons, 43, Old Compton-st., W.
Smith, T., 61, Frith-st., Soho, W.
Willing & Co., 366, Gray's-inn-road, W.C.

Engine and Boiler Fittings Manufacturers.

F.—
G.—Utensilien für Maschinen und Dampfkessel.

Dewrance, J. & Co., 158, Gt. Dover-st., S.E.
Lloyd & Lloyd, 90, Cannon-st., E.C.
Rundell, Son & Co., 53-57, High-st., Poplar, E.

Engine Makers—Caloric.

F.—Machines caloriques (Fab. de).
G.—Luftdruckmaschinen.

CALORIC ENGINE & SYREN FOG SIGNALS CO., 24, BUDGE-ROW, CANNON-ST., E.C. *See index to advertisers.*

Engine Makers—Gas.

F.—Machines (Fab. de)—Gaz Moteurs.
G.—Gas-Motoren.

Crossley Bros., Limited, 24, Poultry, E.C. *See index to advertisers.*
Duncan Bros., 32, Queen Victoria-st., E.C. *See index to advertisers.*
Ladd, John H., & Co., 116, Queen Victoria-st., E.C.
London Gas Engine Co., Dalston-junction, N.E.
TANGYE BROS., 35, Queen Victoria-st., E.C. *See index to advertisers.*
Sterne, L. & Co., Limited, 10, Victoria-chambers, Westminster, S.W. *See index to advertisers.*

Digitized by Google

Engine Makers—Gas—*continued.*

Turner, F. W., 9, St. Andrew's-st., Holborn-circus, E.C.
Wurr, H., & Co., 3, Bloomfield-st., London-wall, E.C.

Engine Makers—Steam.

F.—Machines à Vapeur (Fab. de).
G.—Dampf-Maschinen.

Aveling & Porter, 72, Cannon-st., E.C.
Beck & Co., Limited, 130, Great Suffolk-st., Southwark, S.E.
BERNAYS, J., patent twin-cylinder engines, for driving electric machines, very steady and compact. Prize Medal, Paris Exhibition, 96, Newgate-st., E.C.
Bletchley Iron Works, 46, Tower-chambers, Finsbury-pavement, E.C.
BROTHERHOOD, PETER, 15, Belvedere-road, Westminster-bridge, S.W. *See index to advertisers.*
Cater, Walker & Son, Great Guilford-st., Borough, S.E.
Chaplain, A., & Co., 63, Queen Victoria-st., E.C.
Clayton & Shuttleworth, 78, Lombard-st., E.C.
DALE, R. F., & CO., Bear-lane, Southwark, S.E.
DAVEY, PAXMAN & CO., 139, Queen Victoria-st., E.C., and Standard Iron Works, Colchester. *See index to advertisers.*
Dewrance, John & Co., 158, Gt. Dover-st., S.E.
Dixon & Brooks, 7, Catherine-st., Seething-lane, E.C.
Duncan Bros., 32, Queen Victoria-st., E.C. *See index to advertisers.*
EARLE, N., 80, Cannon-st., E.C. *See index to advertisers.*
Easton & Anderson, 3, Whitehall-place, S.W.
Flood, G. H., & Co., 25 & 27, Holland-st., Blackfriars, S.E.
Fowler, J., & Co., 28, Cornhill, E.C.
Galloway, W. J., & Sons, 64, Cannon-st., E.C.
General Engine & Boiler Co. (The), Hatcham Iron Works, Pomeroy-st., Old Kent-road, S.E.
GREEN, J., & SON, LIMITED (W. H. Cloake, manager), Surrey Works, Blackfriars-rd., S.E. Makers of three-cylinder engines, specially adapted for electric lighting.
GWYNNE & CO., Essex-st. Works, Victoria-embankment, W.C. Highly finished high speed engines, for driving electric machines, turbine water wheels, pumping machinery.
HINDLEY, E. S., Bourton, Dorset, & 52, Queen Victoria-st., E.C. *See index to advertisers.*
Hornsby, R., & Sons, 84, Lombard-st., E.C.
Howard, J. & F., 69, Cornhill, E.C.
Hunt & Mitton, 11, Queen Victoria-st., E.C.
Hunter & English, 202, Bow-road, E.
Jenkins, C., & Co., 131 & 133, Union-st., Borough, S.E.
Lloyd & Lloyd, 90, Cannon-st., E.C.
Mallett, C. S., 120, Cannon-st., E.C.
Marshall, Sons & Co., Limited, 3, King-st., Cheapside, E.C.

Engine Makers—Steam—*continued.*

MAUDSLEY, SONS, & FIELD, Westminster-bridge-road, S.E.
Noakes, Thomas, & Son, 195 & 196, Brick-lane, E.
Oliver, George & Joseph, 75, Mark-lane, E.C.
OLRICK, LEWIS, & CO., 27, Leadenhall-st., E.C. *See index to advertisers.*
Owens, S., & Co., 22, Whitefriars-st., E.C.
Penn, J., & Sons, Greenwich, S.E.
Perkins' Engine Co., Limited, 6, Seaford-st., Gray's-inn-road, W.C.
RANSOMES, HEAD & JEFFERIES, 9, Gracechurch-st., E.C. *See index to advertisers.*
Rhodes, Benjamin, 240, Bow-road, E.
ROBEY & CO., 117, Cannon-st., E.C. *See index to advertisers.*
Russell, John, & Co., Limited, 145, Queen Victoria-st., E.C.
Russell, Jas., & Sons, 108, Southwark-st., S.E.
Ruston, Proctor & Co., 20, Budge-row, Cannon-street, E.C. Electric Light Engines with Automatic Expansion Gear. *See index to advertisers.*
SHANKS, ALEXANDER & SON, 37, Leadenhall-st., E.C.
Slater, James, & Co., 251, High Holborn, W.C.
Stannah, Joseph, 20, Southwark-bridge-rd., S.E.
Starnes, J. S., & Sons, 4, New London-st., E.C.
Stone, J., & Co., Deptford High-st., S.E.
Sykes, H. Y., 66, Bankside, S.E.
TANGYE BROS., 35, Queen Victoria-st., E.C.
Taylor, James, & Co., 110, Cannon-st., E.C.
Thames Iron Works and Ship-building Co., Limited, Orchard-yard, Blackwall, E. *See index to advertisers.*
TYLER (HAYWARD) & CO., 84 & 85, Upper Whitecross-st., E.C., & 39, Queen Victoria-st., E.C.
WILSON, A., & CO., Vauxhall Iron Works, Wandsworth-road, S.W.
Wurr, Henry, & Co., 3, Bloomfield-st., London-wall, E.C.

Engine Oil Refiners.

F.—Raffineurs d'huile de graissage.
G.—Oel-Raffinerie.

Ragosine, F. J. & Co., 22, Leadenhall-st., E.C., & Albion Wharf, Old Ford-road, Bow, E.
ROSE, SIR W. A. & CO., 66, Upper Thames-st., E.C. Sole refiners of their EXTRA REFINED ENGINE OIL for High Speed Engines.

Engineers—Electric Light.

F.—Ingenieurs—Eclairage électrique.
G.—Ingenieure—Electrisches Licht.

Anglo-American (Brush) Electric Light Corporation, Limited, 108, Belvedere-road, Lambeth, S.E. *See index to advertisers.*

Digitized by Google

Engineers—Electric Light—*continued.*

Apps, A., 433, Strand, W.C. *See index to advertisers.*

Bassingham, W. & Son, 3 and 4, Whitecross-st., E.C.

BERLY, J. A., 16, New Bridge-st., E.C. *See index to advertisers.*

BIRMINGHAM & WARWICKSHIRE (BRUSH) ELECTRIC LIGHT & POWER CO., LIMITED, 110, Cannon-st., E.C.

BRIGHT, SIR CHARLES B., 31, Golden-square, W.

BRIGHT, EDWARD B., 31, Golden-sq., W.

BRITISH ELECTRIC LIGHT CO., Heddon-st., Regent-st., W. *See index to advertisers.*

CALDER, J. J. & CO. (late Calder & Barrett), 154, Westminster-bridge-road, S.E.

Cooke, Conrad W., 5, Westminster-chambers, Victoria-st., S.W.

CROMPTON, R. E. & CO., 4, Queen Victoria-st., E.C. *See index to advertisers.*

CUTTING, R. C. & CO., Wardrobe-chambers, Queen Victoria-st., E.C. *See index to advertisers.*

Eastern Electric Light & Power Co., Limited, 53A, Old Broad-st., E.C.

Edmundson, J. & Co., 19, Gt. George-st., S.W.

ELECTRIC LIGHT CARBON CO., 133A, Gt. Suffolk-st., S.E. *See index to advertisers.*

Electric Light Engineering Co., 35, Queen Victoria-st., E.C.

FERRANTI, THOMPSON & INCE, LIMITED, 110, Cannon-st., E.C.

FORREST, G. & SON, 23, New-st.-square, E.C.

Fox, St. G. L., Anglo-American Brush Co., 108, Belvedere-road, Lambeth, S.E.

Francis & Co. (F. R. Francis, C.E., manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.

GRAY, J. W. & SON, 58, Fenchurch-st., E.C.

Griffith & Co., 4, Queen Anne's-gate, S.W. *See index to advertisers.*

GULCHER ELECTRIC LIGHT & POWER CO., 121, Bishopsgate-st. Within, E.C. *See index to advertisers.*

HAMMOND ELECTRIC LIGHT & POWER SUPPLY CO., 110, Cannon-st., E.C.

Harborow & Co., 4, Circus-st., Marylebone-road, W.

Hedges, K., 25, Queen Anne's-gate, Westminster, S.W.

HOPKINSON, J., F.R.S., 4, Westminster-chambers, Victoria-st., S.W.

India-Rubber, Gutta Percha, & Telegraph Works Co., Limited, 106, Cannon-st., E.C.

Johnson & Phillips, 14, Union-court, Old Broad-st., E.C. *See index to advertisers.*

LONDON & PROVINCIAL ELECTRIC LIGHTING & POWER GENERATOR CO., LIMITED, 21, Gt. Winchester-st., Old Broad st., E.C. *See index to advertisers.*

Reid Bros., 12, Wharf-road, City-road, N. *See index to advertisers.*

Siemens Bros & Co., Limited, 12, Queen Anne's-gate, Westminster, S.W.

Engineers—Electric Light—*continued.*

Starnes, J. S., & Sons, 13, Broad-st., Ratcliff, E.

Ward, R., 7, Northumberland-st., Trafalgar-square, W.C.

Werdermann, R., 13, Prince's-st., Cavendish-square, W.

Willard, C. & Son, 85, Hoxton-st., N.

Woodhouse & Rawson, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Engineers—Electrical.

F.—Ingenieurs—Electriciens.
G.—Ingenieure—Electrische.

Anderson, Richard, F.C.S., 101, Leadenhall-street, E.C.

BERLY, J. A., C.E., A.S.T.E., &c., 16, New Bridge-st., E.C. *See index to advertisers.*

Buck, Henry C., 60, Queen Victoria-st., E.C.

Donkin & Vecquary, 14, Tabernacle-walk, E.C.

Electrical Insulator Manufacturing Co., Limited, 31, Lombard-st., E.C.

Fox, George, Lane & Co., 39A, Threadneedle-st., E.C.

Gale, Saml., & Sons. 5, Marylebone-passage, Wells-st., W.

Gooch, Wm. David, 17, Royal Exchange, E.C.

Gordon, Beauchamp & Co., 27, Great George-st., Westminster, S.W.

Greener, J. H., 14, St. Swithin's-lane, E.C.

Laing Electric Light and Power Co., Limited, 4 & 5, Three Crown-square, S.E.

London Electrical Co., 77, Turnmill-st., E.C,

Milligan, Thos., 336, Old Kent-road, S.E.

Probert, Isaac, 151, Penton-place, Walworth-road, S.E.

Westminster Electric Lamp and Dynamo Co., Ld., 3, Victoria-mansions, Victoria-st., S.W.

Wigner & Harland, 37, Lombard-street, E.C.

Engineers—Electrical Consulting.

F.—Ingenieurs—Electriciens consultants.
G.—Ingenieure—Electrische.

APPS, A., 433, Strand, W.C. *See index to advertisers.*

ANDERSON, RICHARD, Leadenhall-house, 101, Leadenhall-st., E.C.

Beasley, Ilsyd T., M.E., 92, Netherwood-road, West Kensington-park, W.

Bell, Robert A., M.E., 92, Netherwood-road, West Kensington-park, W.

BERLY, J. A., C.E., A.S.T.E. &c., 16, New Bridge-st., E.C. *See index to advertisers.*

BRIGHT, EDWARD B., 31, Golden-square, W.

CANNING, SIR SAMUEL, 7, Gt. Winchester-st.-buildings, Old Broad-st., E.C.

CLARK, LATIMER, 6, Westminster-chambers, Victoria-st., S.W.

Cooke, Conrad W., 5, Westminster-chambers, Victoria-st., S.W.

Digitized by Google

Engineers Electrical Consult.—*continued.*

CROMPTON, R. E. & CO., 4, Queen Victoria-st., E.C. Engineers to the Swan United Electric Light Co. *See index to advertisers.*

Duncan Bros., 32, Queen Victoria-st., E.C. *See index to advertisers.*

Francis, F. R., C.E., Eagle Telegraph Works, Hatton-garden, E.C., and Oxford-house, Lawford-road, N.W.

GROTH, A., 30, Finsbury-pavement, E.C. *See index to advertisers.*

Hammond Electric Light & Power Supply Co., 110, Cannon-st., E.C.

India-Rubber, Gutta-Percha, & Telegraph Works Co., Limited, 106, Cannon-st., E.C.

LORRAIN, J. G., 2, Victoria-mansions, Westminster, S.W.

Messer & Thorpe, 8, Quality-court, Chancery-lane, W.C.

Sabine, R., Grosmont-house, Hampton-wick, Middlesex.

Siemens Bros. & Co., Limited, 12, Queen-Anne's-gate, S.W.

Werdermann, R., 13, Prince's-st., Cavendish-square, W.

Woodhouse & Rawson, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Engineers—Electrical Testing.

F.—Ingenieurs—essai électriques.

G.—Ingenieure zum Prüfen der Electricität.

Anglo-American (Brush) Electric Light Corporation, Lmtd., 108, Belvedere-rd., Lambeth, S.E. *See index to advertisers.*

Apps, A., 433, Strand, W.C. *See index to advertisers.*

Ayrton, F.R.S., & Perry, Professors, 71, Queen-st., Queen Victoria-st., E.C.

Bailey, Geo., 55, Gray-st., Blackfriars, S.E.

Barrows & Stewart, 118, Queen Victoria-st., E.C.

BERLY, J. A., 16, New Bridge-st., E.C. *See index to advertisers.*

BRIGHT, SIR CHARLES B., 31, Golden-square, W.

BRIGHT, EDWARD B., 32, Golden-square, W.

Brittain & Foreman, 21, Hermes-st., Pentonville-road, N.

BROUGHAM, HON. REGINALD, British Electric Light Co., Limited, Heddon-st., Regent-st., W.

Clark, E., 6, Westminster-chambers, Victoria-st., S.W.

CLARK, LATIMER, 6, Westminster-chambers, Victoria-st., S.W.

Common, A. A., 35, Queen Victoria-st., E.C.

CUTTING, R. C. & CO., Wardrobe-chambers, Queen Victoria-st., E.C. *See index to advertisers.*

DAVIS, T. Palace-chambers, 9, Bridge-st., Westminster, S.W.

ELECTROLYTIC CO. (THE), Charlotte-st., Blackfriars, S.E. *See index to advertisers.*

Engineers—Electrical—Test.—*continued.*

Elliott Bros., 101, St. Martin's-lane, W.C.

Elmore, W., 91, Blackfriars-road, S.E. *See index to advertisers.*

FERRANTI, THOMPSON & INCE, LIMITED, 110, Cannon-st., E.C.

Forbes, Professor Geo., 35, Duke-st., St. James's, S.W.

Francis & Co. (F. R. Francis, C.E., manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.

Francis, F. R., C.E., Eagle Telegraph Works, Hatton-garden, E.C., and Oxford-house, Lawford-road, N.W.

GRAY, J. W. & SON, 58, Fenchurch-st., E.C.

GREAT WESTERN ELECTRIC LIGHT & POWER CO., LIMITED, 31, Lombard-st., E.C. (Alexander Smith, secretary.)

GRIFFITH & CO., 4, Queen Anne's-gate, S.W. *See index to advertisers.*

Gutta Percha Co. (The), 18, Wharf-road, City-road, N.

Hammond Electric Light & Power Supply Co., 110, Cannon-st., E.C.

Harrison, Hugh, E., 110, Cannon-st., E.C.

HOPKINSON, J., F.R.S., 4, Westminster-chambers, Victoria-st., S.W.

India-Rubber, Gutta-Percha, & Telegraph Works Co., Limited, 106, Cannon-st., E.C.

JARMAN, A. J., 25, Richmond-street, St. Luke's, E.C.

JENNINGS, GEO., Palace Wharf, 67, Lambeth Palace-road, S.E.

OLRICK, LEWIS & CO., 27, Leadenhall-st., E.C. Consulting Engineers to the Edison Electric Light Co. *See index to advertisers.*

Phillips, Fredk. C., 110, Cannon-st., E.C.

Preece, W.H., Gothic-lodge, Wimbledon, S.W.

RANSOME, JOSSELYN & WOODS, Battersea Foundry, Wellington-road, S.W. *See index to advertisers.*

SAX, JULIUS, 108, Gt. Russell-st., Bloomsbury, W.C. *Works, Morwell-st., Bedford-square, W.C.* Electric Bells, Burglar & Fire Alarms, Water Gauges, Watchmen's Clocks, Billiard Markers, Telephones, Lightning-Conductors and Electric Gas Lighters. Prize medals: *London*, 1862; Sydney, 1879; Melbourne, 1881; Paris, 1881; Crystal Palace, 1882.

Siemens Bros. & Co., Limited, 12, Queen Anne's-gate, S.W.

Simmons, C. J., 56, Leverton-st., N.W. *See Index to Advertisers.*

Stroh, A., 98, Haverstock-hill, N.W.

Terrey, Charles A., 114, Lambeth-road, S.E.

WILLARD, F. L., 25, Richmond-st., St. Luke's, E.C.

Woodhouse & Rawson, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Digitized by Google

Engineers—Lighthouse.

F.—Ingenieurs—Phares.
G.—Ingenieure für Leuchtthürme.

Chance Bros. & Co., 24, Finsbury-circus, E.C.
Deville & Co., 23, New-st.-square, New-st., Shoe-lane, E.C.
Edmundson, J. & Co., 19, Great George-st., S.W.
India Rubber, Gutta Percha & Telegraph Works Co., Limited, 106, Cannon-st., E.C.
Simpson & Co., 101, Grosvenor-road, S.W.
Wells, G., 12, North-st., Smith's-square, Westminster, S.W.
Wilkins & Co., 24, Long-acre, W.C.

Engineers—Mechanical.

F.—Ingenieurs—Mecaniciens.
G.—Ingenieure—Maschinenbau.

ALLEN, W. H. & Co., York-st. Works, York-road, Lambeth, S.E. *See Index to Advertisers.*
Appleby Bros., 89, Cannon-st., E.C.
Armstrong, Sir W. G. & Co., 8, Great George-st., S.W.
Atlas Engine Company, 4, Broad-st.-buildings, Liverpool-st., E.C.
Ayrton, F.R.S. & Perry, M.E., Professors, 71, Queen-st., Queen Victoria-st., E.C.
BAILEY, GEO., 55, Gray-st., Blackfriars-road, S.E.
BOLLING & LOWE, 2, Laurence Pountney-hill, E.C.
Brotherhood, Peter, 56 & 53, Compton-st., E.C. *See Index to Advertisers.*
Burrell, Chas. & Sons, 123, Cannon-st., E.C.
Clark & Standfield, 6, Westminster-chbrs., S.W.
Clayton & Shuttleworth, 78, Lombard-st., E.C.
Coles, H. J., 89, Sumner-st., Southwark, S.E.
DALE, R. F. & CO., Bear-lane, Southwark-st., S.E. *See Index to Advertisers.*
DAVEY, PAXMAN & CO., 139, Queen Victoria-st., E.C.
DE NEGRI CONSTANTINE, 68, Stamford-st., Blackfriars-road, S.E.
Dewrance, J. & Co., 158, Great Dover-st., S.E.
DUNCAN BROS., 32, Queen Victoria-st., E.C. *See Index to Advertisers.*
Easton & Anderson, 3, Whitehall-place, S.W.
Elder, J. & Co., 5, Lime-st., E.C.
ELECTRIC LIGHTING & GENERAL AGENCY, CO. (J. Glew, Manager), Crown-buildings, 79, Queen-st., E.C. *See Index to Advertisers.*
Elliott Bros. 449, Strand, W.C.
Emmerson, Murgatroyd & Co., 84, Cannon-st., E.C.
ETHERINGTON, J., 39A, King William-st., E.C. Consulting Mechanical Engineer. *See Index to Advertisers.*
Galloway, W. & J. & Sons, 64, Cannon-st., E.C.
General Engine & Boiler Co., Hatcham Iron Works, Old Kent-road, S.E.
GREEN, T. & SON, LIMITED, Surrey Works, Blackfriars-road, S.E.

Engineers—Mechanical—*continued.*

GULCHER ELECTRIC LIGHT & POWER CO., 121, Bishopsgate-st. Within, E.C. *See Index to Advertisers.*
GWYNNE & CO., Victoria - embankment, New Bridge-st., E.C.
Handyside, A. & Co., 32, Walbrook, E.C.
Hayward, Tyler & Co., 84 & 85, Upper Whitecross-st., E.C.
HENRY RIFLED BARREL, ENGINEERING & SMALL ARMS CO., Eagle Wharf-road, Hoxton, N.
HERBERT, JOHN, 8, Southampton-st., Fitzroy-square, W.
Hindley, E. S., 52, Queen Victoria-st., E.C. *See Index to Advertisers.*
Holtzapffel & Co., 64, Charing-cross, S.W.
Hornsby, R. & Sons, 84, Lombard-st., E.C.
Hunter & English, 202, Bow-road, E.
INSTITUTE (THE) OF MECHANICAL ENGINEERS, 10, Victoria-chambers, Westminster, S.W.
JAMES, JABEZ, 40, Princes-st, Commercial-rd., Lambeth, S.E. Agent for Böhler Bros. & Co.
Ladd, J. H. & Co,, 116, Queen Victoria-st., E.C.
LANE, HOWARD, 117, Palmerston-buildings, Old Broad-st, E.C. Agents for Root's steam boilers, wrought iron and steel tubes of all descriptions. All descriptions of steam, hydraulic, and general machinery, constructive iron work, metals, &c., purchased on the most favourable terms. Preliminary suggestions, sketches, or calculations gratis.
LONDON & PROVINCIAL ELECTRIC LIGHTING & POWER GENERATING CO., LIMITED, 21, Great Winchester-st., Old Broad-st., E.C. *See Index to Advertisers.*
Mackie, J. & J. & Co., 4, Brabant-court, E.C.
Marshall, Sons & Co., 3, King-st., Cheapside, E.C.
Maudsley, Sons & Field, Westminster-bridge-rd., S.E.
Merryweather & Sons, Greenwich-road, S.E.
Middleton, T. & Co., Loman-st., Gravel-lane, S.E.
Nasmyth, Wilson & Co., 64, Cannon-st., E.C.
NICKHOLS, JOHN, 103, New North-road, N.
NORTON, F. L., 84, Cannon-st., E.C.
Oldham Bros., 110, Cannon-st., E.C.
Ormerod, Grierson & Co., 5, Westminster Chambers, S.W.
Owens, S. & Co., Whitefriars-st., Fleet-st., E.C.
Penn, J. & Sons, Greenwich, S.E.
Pontifex, (E. & W.) & Wood, J., Shoe-lane, E.C.
Pulsometer Engineering Co., 61 & 63, Queen Victoria-st., E.C.
RANSOME, JOSSELYN & WOODS, Battersea Foundry, Wellington-road, S.W. *See index to advertisers.*
Ransomes', Sims & Head, 9, Gracechurch-st., E.C. *See Index to Advertisers.*
Reading Iron Works, 1, Gresham Buildings, E.C.
Richmond, J. & Co., 31 & 32, Kirby-st., Hatton Garden, E.C.
ROBEY & COMPANY, 117, Cannon-st., E.C. *See Index to Advertisers.*

Digitized by Google

Engineers—Mechanical—*continued.*

ROGERS, F. M., 21, Finsbury Pavement, E.C. Consulting Mechanical Engineer and Valuer. *See index to advertisers.*

Rundell, Son, & Co., 53, 57, High-st., Poplar, E.

Saxby & Farmer, 31, Parliament-st., S.W., & at Kilburn, N.W.

SMITH, SPENCER, 11, West-st. & 30, Litchfield-st., W.C.

Stannah, J., 20, Southwark-bridge-road, S.E.

Starnes, J. S. & Sons, 13, Broad-st., Ratcliff, E.

Stephenson, R. & Co., 9, Victoria-chambers, S.W.

Sterne, L., & Co., 10, Victoria-chambers, S.W.

Stevens & Sons, 237 & 243, Southwark-bridge-road, S.E.

Tees Side Iron & Engine Works Co., 97, Cannon-st., E.C.

WAILES, GEO. & CO., 258, Euston-rd., N.W.

West, H. J., & Co., 116 & 118, Southwark-bridge-road, S.E.

Whitworth, Sir Joseph & Co., 24, Great George-st., S.W.

WILSON, A. & CO., Vauxhall Iron Works, Wandsworth-road, S.W.

WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C.

Yarrow & Co., Isle of Dogs, Poplar, E.

Engineers—Telegraph.

F.—Ingenieurs—Télégraphe.
G.—Ingenieure—Telegraphenbau.

Apps, A., 433, Strand, W.C. *See index to advertisers.*

BRIGHT, SIR CHARLES B., 31, Golden-sq.W.

BRIGHT, EDWARD B., 31, Golden-square, W.

British Telegraph Manufactory Co., Limited, 406, Euston-road, N.W.

Brittan & Foreman, 21, Hermes-st., Pentonville-road, N.

Canning, Sir Samuel, 7, Gt. Winchester-st., E.C.

Chadburn & Sons, 96, Fenchurch-st., E.C.

CLARK (L), MUIRHEAD & CO., 23 Regency-st., Westminster, S.W.

Driver, George, 406, Euston-road, N.W.

Elliott Bros., 449, Strand, W.C.

Francis, Frank R., C.E., 4, Lawford-road, N.W.

Fuller, John Crisp, & Son, 547, Old Ford-road, Bow, E., and 47, Finsbury-pavement, E.C.

Fynn & Carle, 22, Pigott-street, E.

Garnham & Co., Sash-court Wilson-st., Finsbury, E.C. *See index to advertisers.*

Gray, M., 106, Cannon-st., E.C.

GREENER, J. H., 14, St. Swithin's-lane, E.C.

Gutta Percha Co. (The) 18, Wharf-road, City-road, N.

HARPER, R. R., 86, Clifton-st., Finsbury, E.C.

Henley's (W. T.) Telegraph Works Company, Limtd., 8, Drapers'-gds, Throgmorton-st., E.C. *See index to advertisers.*

Igonel, F., 25, Richmond-st., St. Luke's, E.C.

Engineers—Telegraph—*continued.*

India Rubber, Gutta Percha & Telegraph Works Co. Limited, 106, Cannon-st., E.C.

Johnson & Phillips, 14, Union-court, Old Broad-st., E.C. *See index to advertisers.*

PHILLIPS BROTHERS., Mackintosh-lane, Homerton, E., & Lea Telegraph Works, Hackney Wick, E. *See index to advertisers.*

Preece, W. H., Gothic-lodge, Wimbledon, S.W.

Reid Brothers, 12, Wharf-road, City-road, N. *See index to advertisers.*

Sax Julius, 108 Great Russell-st., W.C.

Siemens Bros., & Co., Limited, 12, Queen Anne's Gate, Westminster, S.W.

SOCIETY OF TELEGRAPH ENGINEERS, AND OF ELECTRICIANS, 4, The Sanctuary, Westminster, S.W. F. H. WEBB, Secretary..

SPENCER, JAMES E. & SAMUEL, 3, Queen-st.-place, E.C.

Stames, J. S., & Sons, 13, Broad-st., Ratcliff, E., and 4, New London-st., Fenchurch-st., E.C.

Stroh, A., 98, Haverstock-hill, N.W.

Theiler, M., & Sons, 86, Canonbury-road, N.

Varley, O. & Frederick H., Mildmay-avenue, Mildmay-st, Ball's Pond, N.

Vernon, Betts & Co., 23, Leadenhall-st., E.C.

Warden, W. M., & Co., 27 Great George-st., Westminster, S.W.

Werdermann, R., 13, Prince's-st., Cavendish-square, W.

Engravers on Wood.

F.—Graveurs sur Bois.
G.—Holtzbildhauer.

Barnard, James, 1, Viaduct-chambers., Holborn, E.C.

Berry, A., 53, Paternoster-row, E.C.

Bradley, James T., 162, Edmund-st., B'ham.



Bradley, Wm. Geo., 303, Strand, W.C.

Branston & Co., 119, Salisbury-square, E.C.

Butterworth, Chas., 356, Strand, W.C.

Bye, John, 9, Essex-st., Strand, W.C.

Caman, Thomas, 10, Bolt-court, Fleet-st., E.C.

Cattell, A. S. & Co., 28, Farringdon-st., E.C.

CHEFFINS, RICHARD ALFD, 9, Essex-st., Strand, W.C.

Cheshire, W. & J. R., 23, Holborn-viaduct, E.C.

Collings & Co., 172, Strand, W.C.

Collins, T. D., 97, Fleet-st., E.C.

COLLIS, J., & CO., 138, Fleet-st., E.C., & at 72, Denmark-hill, S.E.

Cooper, Jas., 188, Strand, W.C.

Digitized by Google

Engravers on Wood—*continued.*

Day & Collins, 29, 50, & 52, Fann-st., E.C.
Desbois, Joseph, 9, Essex-st., Strand, W.C.
Dix, H. & A., 26, Poppin's-court, Fleet-st., E.C.
Embleton, J. T., 21, St. Bride-st., E.C.
Evans, Hy., 303, Strand, W.C.
Evans, Hy., 8, Red Lion-court, Fleet-st., E.C.
Galbraith, Jas., 4, Crane-court, Fleet-st., E.C.
Godart, Frank, 45, Imperial-buildings, New Bridge-st., E.C.
Gooding, Joseph, 10, Red Lion-ct., Fleet-st., E.C.
Gorway, Walter, 32, Rochester-square, N.W.
Greenaway, John, 4, Wine-office-court, E.C.
GRIFFITHS, JOHN CHAS., 100, Fleet-st., E.C. Spécialité for delineation of Electrical Appliances
Hare, T. M., & Co., 31, Essex-st., W.C.
Harral, Horace Downe, Temple-chambers, Falcon-court, E.C.
Harrison, Hy., 32, Fleet-st., E.C.
Hartshorn, Edward Thos., 123, Chancery-lane, E.C.
Hastie, Edward, 33, Fetter-lane, E.C.
Hewitt, Geo., 28, Ludgate-hill, E.C.
Hill, Edmund, 48, Essex-st., Strand, W.C.
Holdaway, Isaac Horatio, 64, Fleet-st., E.C.
Hollidge, Wm., 5, Fetter-lane, E.C.
Irons, Clarke & Co., 23, Bouverie-st., E.C.
Jewitt-Keates & Reynolds, 20, Clifton-villas, Camden-square, N.W.
Joyce, W. H., 11, Bolt-court, Fleet-st., E.C.
LAWRIE, MILTON, 97, Fleet-st., E.C.
Leslie, Alex. Duff, 295, Strand, W.C.
Loudan, R., 37, Essex-st., Strand, W.C.
Mardara & Co., 158, Strand, W.C.
Masters, Tertius, 54, Paternoster-row, E.C.
Miller, John Fenwick, 64, Fleet-st., E.C.
Mitchell, Fredk., Wm., 6, Wine-office-court, Fleet-st., E.C.
Murray, Chas., 6, Wine-office-court, E.C.
NICHOLLS, J. & G. P., 17, Holborn-viaduct, E.C.
Page, John, 110, Hatton-garden, E.C.
Pain, Wm., Bowyer, 45, Imperial Buildings, New Bridge-st., E.C.
Pearson, G., 3, Bolt-court, Fleet-st., E.C.
Power, Joseph Blakesley, 17, Jewry-st., E.C.
Prater, H., 152, Fleet-st., E.C.
Purchaser & Canham, 168, Fleet-st., E.C.
Puttock, George, 9, Essex-st., Strand, W.C.
Rimbault, J. H., 30, Maiden-lane, Covent-garden, W.C.
Roberts, Percy, 9, Essex-st., Strand, W.C.
Sachs, John, New Courts-Chambers, 58, Chancery-lane, E.C.
Sawers, Wm. Anderson, 49, Essex-st., Strand, W.C.
Scott, Andrew, 152, Fleet-st, E.C.
Swain, John, 266, Strand, W.C.
Swain, Joseph, 6, Bouverie-st., Fleet-st., E.C.
Taylor, R., 17, New Bridge-st., E.C.
THORNTON, H., & CO., 89, Farringdon-st., E.C.
Thorpe, Fredk., 53, Tavistock-road, W.

Engravers on Wood—*continued.*

WATSON, WM. JAS., East Temple-chambers, E.C.
Welch, W. J., 25, Wellington-st., Strand, W.C.
White, Henry Wm., 14, Carthusian-st., E.C.
Williams, Frederick, 17, Holborn-viaduct, E.C.
Willis, Wm. Dalrymple, 123, Chancery-lane, W.C.
Wymper, J. W. & Edward, Lambeth-road, S.E.

Felt Makers.

F.—Feutre (Fab. de).
G.—Filz-Fabrikanten.

Anderson, David & Son, 10, London-st., E.C.
Ashton & Green, Limited, 11, Bury-st., St. Mary Axe, E.C.
Croggon & Co., 42, Upper Thames-st., E.C.
Dolge, Alfred, 132, Queen Victoria-st., E.C.
Ellis, Edwin, Horney-lane, Neckinger, Bermondsey, S.E.
Engert & Rolfe, Barchester-street, Poplar New Town, E.
Greenock Felt Works Co., 27, Leadenhall-st., E.C.
Keenan, Matt., 139, 141, Tredegar-road, E.
Keller, Albert, 7, Bell-yard, Doctor's-Com., E.C.
London Patent Felt Company (The), 4, Botolph-lane, E.C.
Martenstein, A. & Co., 81, Queen Victoria-st., E.C.
McIlwraith, James & Co., 35, King William-st., E.C.
M'Neill, F. & Co., 1, Lamb's-buildings, Bunhill-row, E.C.
McTear & Co.. 63, Bishopsgate-st. Within, E.C.
Newton, John & Co., Manor Works, Rotherhithe New-road, S.E.
Patent Woollen Cloth Co., 8, Love-lane, Wood-st., E.C.
Rogers, John, 1, Fenchurch-st., E.C.
Stephens, J. & Co., 2, Frith-st., Soho-sq., W.
Vereinigte, Fitzfabriken Giengen, A/B, 81, Queen Victoria-st., E.C.
Whitehead, R. R. & Bros., 10, Endell-street, Long Acre, W.C.

Flexible Gas, Speaking, Telephone, &c., Tube Makers.

F.—Tuyaux à Gaz flexibles, Téléphones, etc. (Fab. de).
G.—Fabrikanten für Gas-, Speech- und Telephon-Röhren.

Britannia Rubber & Kamptulicon Co., 23, Cannon-street, E.C.
Eschmann Bros. & Walsh, 23, Bartholomew-square, E.C.
Foster & Williams, 87, Grange-road, Bermondsey, S.E.
Francis & Co. (F. R. Francis, C.E, Manager), Eagle Telegraph Works, Hatton Garden, E.C., & Lawford-road, N.W.
Hancock, J. L., 266, Goswell-road, E.C.
Harburg & Vienna India Rubber Co., 10 & 14, Tower Chambers, Finsbury Pavement, E.C.

Digitized by Google

Flexible Gas, &c., Tube Mak.—*continued.*

India Rubber, Gutta Percha, and Telegraph Works Company, Limited, 106, Cannon-st., E.C.

LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; Paris, & 42, Rue de Ruysbroeck, Brussels.

SHEATH BROTHERS, 89, City-road, E.C. *See index to advertisers.*

WESTON, G. & CO., 92, Mile End-road, E.

Württemberg Wollfiltz Manufactur Giengen, 81, Queen Victoria-street, E.C. (Hund Bros.)

Galvanizers.

F.—Galvaniseurs.
G.—Galvaniseure für Eisen.

Ashton & Green, Limited, 11, Bury-st., St. Mary Axe, E.C.

Binks Bros., Strafford-st., Millwall, E.

Birkenhead Galvanized Iron Co., 19, Gracechurch-st., E.C.

Blackwall Galvanized Iron Co., 4, Corbet-court, Gracechurch-st., E.C.

Braby, Fred. & Co., 352 to 364, Euston-rd., N.W.

Brooker, Dore & Co., 4, Corbet-ct., Gracechurch-st., E.C.

Brown, J. B. & Co., 90, Cannon-st., E.C.

Croggon & Co., 42, Upper Thames-st., E.C.

Davis Bros. & Co., 110, Cannon-st., E.C.

Eagle Galvanizing & Tin Coating Co., 46, Tower-chambers, Moorgate-st., E.C.

EAST LONDON GALVANIZING AND METAL COMPANY, LIMITED, 31, Lombard-st., E.C.

FOX, EDWIN & CO., LD., Works, Millwall; Offices, 5, Great Winchester-st., E.C.

Holcroft, Jas. & Charles, 139, Cannon-st., E.C.

Humphreys, J. C., Albert Gate Iron Works, 22, High-road, Knightsbridge, S.W.

London Galvanised Iron Company, 27, Wharf-road, City-road, N.

Ludlow Bros., 19, Gracechurch-st., E.C.

Lysaght, John, Ld., 28, Gracechurch-st., E.C.

Phillips, Punnett & Thompson, 27, Martin's-lane, E.C.

Ramsden, Camm & Co., 72, King William-st., E.C.

Redcliffe Crown Galvanised Iron Co., 118, Cannon-st., E.C.

Scott, F. W., 63, Bishopsgate-st. Within, E.C.

Treggon & Co., Limited, 19, Jewin-st., E.C.

Walker, J. W. & T., 57, Gracechurch-st., E.C.

Wall, Charles & Son, 28, Holborn-viaduct, E.C.

Whitecross Wire & Iron Co., 2, King William-st., E.C.

Whitehouse & Co., 13, Crutchedfriars, Mark-lane, E.C.

Wolverhampton Corrugated Iron Co., 63, Bishopsgate-st. Within, E.C.

Galvanized Wire Manufacturers.

F.—Fil Galvanisé (Fab. de).
G.—Galvanischer Draht—Fabr.

Johnson, R. & Nephew, 8, Great Winchester-st., E.C.

Gas Generating Machine Manufacturers.

F.—
G.—Gas-Erzeugungs-Maschinen.

DOWSON ECONOMIC GAS CO., LIMITED, 3, Great Queen-st., Westminster, S.W. Economic gas machine. *See index to advertisers.*

Gelatinized Fibre Manufacturers.

F.—Fibre Gélatinisée (Fab. de).
G.—Gallertefaser-Fabrikanten.

India Rubber, Gutta Percha, and Telegraph Works Company, Limited, 106, Cannon-st., E.C.

MOSSES & MITCHELL, 62, Queen Victoria-st., E.C.

General Suppliers of Electrical Requisites.

F.—Fournitures générales électriques.
G.—Händler in electrischen Requisiten.

WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. Dynamos, arc and incandescent lamps, covered and bare copper wire, German silver and platinum wire, carbons, insulators, switches, brackets, batteries-glass, oil, waste, vulcanite, ebonite, sulphuric acid, mercury, Woodhouse & Rawson's patent split insulator

German Silver Wire Manufacturers.

F.—Fil de Maillechort (Fab. de).
G.—Alfenide-Draht—Fabr.

Harrison, George, 20, Drury-lane, W.C.

ORMISTON & CO., 25 & 27, Old-st., St. Luke's, E.C. *See index to advertisers.*

PHILLIPS BROTHERS, Macintosh-lane, Homerton, E., & Lea Telegraph Works, Hackney Wick, E. *See index to advertisers.*

RICKARD, WM.,—Derby—(Holloway, Edwin, Agent), 2, Gutter-lane, Cheapside, E.C. *See index to advertisers*

Smith, John & Sons, 18, 23-4, St. John's-square, E.C.

Glass Benders.

F.—Verre (Cintreurs de).
G.—Glas-Spanner.

BOWDEN, JOHN, 44, High-st., St. Giles', Broad-st., W.C.

Busk, Thomas, 11, Central-st., St. Luke's, E.C.

DEFRIES, J. & SONS, 147, Houndsditch, E. *See index to advertisers.*

Digitized by Google

Glass Benders—*continued.*

Dickson & Head, 79, St. George-st., East Smithfield, E.
Gibson, Andrew, 24, Queen's-road, Dalston, E.
Holborn Lamp Works, 116, High Holborn, W.C.
Hudson, Albert George, 64, Sutton-st., East, E.
Ide, T. & W., Brook-st., Ratcliff, E.
Marshall, Hy. Thos., 160, Newington-butts, S.E.
Pellatt & Co., 17, St. Bride-st., Ludgate-circus, E.C.
Ramsay, W., 29, Farringdon-st., E.C.
Rayment, Wm. & Co., 157, St. John-st., E.C.

Glass Blowers.

F.—Verre (souffleurs de).
G.—Glasbläser

ARRIGHI, L., 36, Brooke-st., Leather-lane, Hatton-garden, E.C.
Bellchamber, Geo., Belle Isle, York-road, N.
BÖHM, Ernest, 33, Northampton-st., Clerkenwell, E.C.
CETTI, E., 36, Brooke-st, Holborn, E.C. Glass Works, Pratt-st., Lambeth, S.E.
Clayton, Wm., 87, East-road, City-road., N.
Dean, Alfred, 8, Cross-st., Hatton-garden, E.C.
DEFRIES, J. & SONS, 147, Houndsditch, E. *See index to advertisers.*
Emmerton, J. 13, Kirby-st., Hatton-garden, E.C.
Gretton & Cross, 2, Chatham-row, Darwin-st., S.E.
Harding, Robt., Suffolk-grove, Southwark, S.E.
Hicks, J. J., 8, Hatton-garden, E.C.
Hill, Charles, 43, Warwick-st., Borough-rd., S.E.
Knott, Wm., Rhodeswell Wharf, Carr-st., E.
Morgan, Mrs. Emily, 19, Sekforde-st., Clerkenwell, E.C.
Müller, Emilius, 79, Leadenhall-st., E.C.
Orrock, Robert, Wallis-road, Hackney-wick, E.
Pastorelli & Rapkin, 40, Hatton-garden, E.C.
Pellatt & Co., 17, St. Bride-st., Ludgate Circus, E.C.
Powell, James & Sons, Temple-st., Whitefriars, E.C.
Ray, John, 11, Lucretia-st., Lower Marsh, Lambeth, S.E.
Sharp, Hy., 59, Paul-st., Finsbury, E.C.
Venice & Murano Glass & Mosaic Co., 30, St. James's-st., S.W.
Walker, Jno., 42, Great Garden-st., Mile End New Town, E.
Ward, S., 24, Gt. James-st., Bedford-row, W.C.
Wauthier, I., 58, Red Lion-st., Clerkenwell, E.C. Scientific.
Wheeler, John Jackson, 189, Fulham-road, S.W.
Williams, Edmund, 79, Fairfoot-road, Bow, E.
Winter, John, Belle Isle, York-road, N.
WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. Every class of work done; large stock kept. *See index to advertisers.*
Zambra, J., 35, Sekforde-st., Clerkenwell, E.C.

Glass Cell (Battery) Manufacturers.

F.—Cellules-verres.
G.—Glaskrüge für Electrische Batterien.

Cadiôt, E. H., 6, Lime-st., E.C.
HOUGHTON, G. & SON, 89, High Holborn, W.C.
WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Glass Globe Makers.

F.—Verre (Fab. de globes).
G.—Glaskugeln für electrische Lampen.

BELGIAN GLASS CO. (Berry, John & Co.), 1, New Broad-st., E.C. Globes in Opal, Flashed Opal, Alabastine, Ground, etc.
Belgian Glass Co. (The) (C. H. De Grelle & Co.), 19, Basinghall-st., E.C.
DEFRIES, J. & SONS, 147, Houndsditch, E. *See index to advertisers.*
GREENE, H. & SON, 153, Cannon-st., E.C. *See index to advertisers.*
HOUGHTON, G. & SON, 89, High Holborn, W.C.
HULETT, D. & CO., 55, High Holborn, W.C. *See index to advertisers.*
Kissow & Co., 24 & 26, Basinghall-st., E.C. Globes for Electric Lighting.
LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris, and 42, Rue de Ruysbroeck, Brussels. Globes for all systems of lamps kept in stock in opal, alabaster, clear and ground glass.
Malley & Sons, 43, Parker-st., Little Queen-st., W.C.
Newton, Frederic & Co., 3, Fleet-st., E.C.
Newton & Son, 66, Chancery-lane, W.C.
OSLER, F. & C., 100, Oxford-st., W.
Quitmann, Carl, Jewin-crescent, E.C.
Schölzig, O., opal globes, flint cased with opal, ground flint, &c., 9, New Broad-st., E.C.
Smith, Charles & Son, 63, Charing-cross, S.W.
Walsh, John W., 4, Holborn-circus, E.C. Works, Soho, Birmingham. Manufacturers of every description of glass globes in flint, opal, alabaster, etc., specially adapted for electric lighting; also tubing for making incandescent lamps, etc., etc.
Woodhouse & Rawson, 11, Queen Victoria-st., E.C. Coloured globes and any special kind made to order. *See index to advertisers.*
Woodward, Geo., 5, Charles-st., Hatton-garden, E.C.
Wyld, James, 2, Royal Exchange, E.C.

Glass House Makers.

F.—Serres (Fab. de).
G.—Glashaüser für Electriker.

WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. Large stock kept. Bulbs and tubing made to order. *See index to advertisers.*

Digitized by Google

Glass Shade Makers and Dealers.

F.—Abats-jour en verre (Fab. de).
G.—Glasglocken-Fabrikanten.

Berry, John & Co., 1, New Broad-st., E.C.
Cocquerel, E., 132, Commercial-st., E.
COX, JAMES ABRAHAM, 44, Old Compton-st., W.
Cox, William, 44 to 48, Crown-st., Soho, W.C.
Darby & Tackley, 30 & 32, Goswell-road, E.C.
Deas, John, 19, Crown-street, Soho, W.C.
Dequirot, Edouard, 5, Steward-st., Spitalfields, E.
Eade & Son, 130, High Holborn, W.C.
Fordyce, Edward, 144, Holloway-road, N.
Frank & Bazin, 172, St. John-st., E.C.
Hodge & Co., 100 & 101, Hatton-garden, E.C.
Hopkins, Jas., 192, Walworth-road, S.E.
HOUGHTON, G. & SON, 89, High Holborn, W.C.
Lilmant & Co., 93, Old-st., E.C.
Marchand, Alf. & Co., 9, Kingsland-road, E.
Mettam & Winnett, 71, Wardour-st., W.
Nestle & Huntsman, 157, Commercial-road, E.
OSLER, J. & C., 100, Oxford-st., W.
Parvin, Rich. John, 303, Euston-road, N.W.
Pearson, Thos., 3, Tyler's-court, Carnaby-st., Golden square, W.
Phillips Bros., 106, Praed-st., W.
Pilkington Bros., 171, Queen Victoria-st., E.C.
Ramsey, W., 29, Farringdon-st., E.C.
Ring, Geo., 144, Kingsland-road, E.
Rousenberg, Chas., 48, Brushfield-st., E.
Simon, A. & Co., 42, Hatton-garden, E.C.
Southward, C., 10, White-st., Houndsditch, E.
Strong & Co., 36, St. Martin's-lane, W.C.
Tate, Robert Perry, 31, Holborn-hill, E.C.
Teague, John & Son, 42, Frederick-st., Gray's-inn-road, W.C.
Tibbald, James & Co., Albert Embankment, S.E.
Willmore Bros, 140, Brompton-road, S.W.

Glass Shade Stand Makers.

F.—
G.—Ständer für Glaslocken.

Berton, Henry, 56, Central-st., St. Luke's, E.C.
Boynton, Jas. Wm., 55, Crown-st., Soho, W.C.
Cocquerel, Eugene, 132, Commercial-st., E.
Glanvill, Hermon, 3, Whitfield-st., Fitzroy-square, W.
Ramsey, Wm., 29, Farringdon-st., E.C.

Governor Makers.

F.—Régulateurs (Fab. de).
G.—Regulator-Fabrikanten.

Wright & Co., 132, Upper Thames-st., E.C. Grafton Jones, Steam Engine Governor.

Grease Manufacturers.

F.—Graisse (fab. de).
G.—Schmiere-Fabrikanten.

Alder, Hy., Brooke & Co., 60, Fenchurch-st., E.C.

Grease Manufacturers—*continued.*

Catchpole, Ed. & Sons, Plough-bridge, Plough-road, Rotherhithe, S.E.
Catchpole, Henry Wm. & Septimus, Acre-wharf, Bow-bridge, E.
Clark, Robt., Ingham & Co., 101, Leadenhall-st., E.C.
Craig & Rose, 75, Southwark-st., S.E.
Crosfield, Albert J. & Co., Acre Wharf, Bow Bridge, E.
Davey, Wm., 101, Leadenhall-st., E.C.
Denton & Jutsum, 9, New Broad-st., E.C.
Dickinson, Arthur J., Surrey Canal, Deptford, S.E.
DUNCAN, WATSON & CO., Dashwood-house, New Broad-st., E.C. *See index to advertisers.*
Dussek, Alex. Louis, Windmill-lane, Deptford, S.E.
Felton, Joseph, 102 & 103, Russell-st., Bermondsey, S.E.
Fenner, Nathaniel J. & Hy., Millwall, E.
Foulger, John & Sons, 6, Lime-st., E.C.
Gidney, Clark & Co., 101, Leadenhall-st., E.C.
Grindley & Co., Upper North-st., Poplar, E.
Gross & Sherwood, 2, Little Lant-st., Borough, S.E.
Guerrier, Alf. Chas., Fulham-fields, S.W.
Kirton, Thos. J. & Co., 2 & 3, Bankside, Southwark, S.E.
MacBean, Hugh & Co., 7, Mincing-lane, E.C.
Malins, Alfred & George, 52, White-post-lane, Hackney-wick, E.
Matthews, John & Co., 3, Market-buildings, Mincing-lane, E.C.
Parry, Henry & M., 22, Deptford-broadway, S.E.
Pilcher, John Giles, & Jeremiah & Sons, Morgan's-lane, Tooley-st., S.E.
Pritchard, Offor & Co., 24, Crutchedfriars, Mark-lane, E.C.
Rogers, John, St. Bene't-chambers, Fenchurch-st., E.C.
ROSE, SIR W. A. & CO., 66, Upper Thames-st., E.C. Sole manufacturers of their PATENT INFUSIBLE GREASE for High Speed Engines.
Rowland, Chas., Railway-arches, Southwark-park-road, S.E.
Smith Bros. & Co., Marshgate-lane, Stratford, E.
Storer, David & Sons, 128, Leadenhall-st., E.C.
Storer, James & Co., 66, Queen-st., E.C.
Talbot & Alder, 60, Fenchurch-st., E.C.
Wiggins & Rihll, 157, Fenchurch-st., E.C.
Worringham, T. Henry & Co., Blackhorse-road, Deptford, S.E.

Gutta Percha Manufacturers and Dealers.

F.—Caoutchouc (Fab. de).
G.—Guttapercha-Fabrikanten.

Anderson, Abbott & Anderson, 37, Queen Victoria-st., E.C.
Benham, John & Co., 236, Oxford-st., W.
FOSTER & WILLIAMS, 87, Grange-road, Bermondsey, S.E.

Digitized by Google

Gutta Percha Manfs. & Dealers—*continued.*

Gutta Percha Co., Wharf-road, City-road, N.
Harburg & Vienna India Rubber Co., 10, Tower-chambers, Finsbury-pavement, E.C.
Hart Bros., 40, Monkwell-st., Cripplegate, E.C.
India Rubber, Gutta Percha & Telegraph Works, Co., Limited, 106, Cannon-st., E.C.
Irwell India Rubber & Gutta Percha Works, Limited, 6, Billiter-st., E.C.
LEVY, ARMAND, Electrical Sundriesman, Cable Wire, Sheet Tissue, &c., &c., 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; & 42, Rue de Ruysbroeck, Brussels.
Meiter, C. W. & Co., 86, Gracechurch-st., E.C.
Plumb, H., 115A, City-road, E.C.
SHEATH BROS., 89, City-road, E.C. *See index to advertisers.*
Smith, J. & Co., 87, Blackman-st., Borough, S.E.
Winter, J. & Co., 1, Park-side, Knightsbridge, S.W.

High Speed Engine Makers.

F.—Moteurs à Grande Vitesse.
G.—Dampfmaschinen zur Erzeugung der Electricität.

BROTHERHOOD, P., 15, Belvedere-road, S.E. *See index to advertisers.*
DAVEY, PAXMAN & CO., 139, Queen Victoria-st., E.C., & Standard Iron Works, Colchester. *See index to advertisers.*
DUNCAN BROS., 32, Queen Victoria-st., E.C. *See index to advertisers.*
EARLE, N. (the Hodson's), 80, Cannon-st., E.C. *See index to advertisers.*
GWYNNE & CO., Essex-st. Works, Victoria-embankment, W.C.
HINDLEY, E. S., Bourton, Dorset. 52, Queen Victoria-st., London, E.C. *See index to advertisers.*
Hunter & English (the Willan's), 202, Bow-rd. E.
JABEZ, JAMES, 40, Princes-st., Commercial-road, Lambeth, S.E. Agent for Bohler Bros. & Co.
TANGYE BROS. (the "Soho"), 35, Queen Victoria-street, E.C. *See index to advertisers.*
Thames Iron Works & Shipbuilding Co., Limited (the Hodson's), Blackwall, E. *See index to advertisers.*

Hinge Makers.

F.—Charnières (Fab. de).
G.—Charniere.—Fabr.

Adams, Robt., 7, Great Dover-st., S.E.
Baldwin, Son & Co., 4, Corbet-court, E.C.
Bothenburg, Hyman, 450, Mile-end-road, E.
Coombs, Wm. C., 16, Myddelton-st., E.C.
Cottam & Co., 2, Winsley-st., W.
Dyus, John & Co., 28, New Charles-st., City-road, E.C.
Gerish, Samuel & Co., 25, Buttesland-st., Hoxton, N.
Hart, Son, Peard & Co., 53 to 58, Wych-st., Strand, W.C.

Hinge Makers—*continued.*

Large, John & Co., 23, St. Mary-axe, E.C.
Lionel Street Co., 19, Gracechurch-st., E.C.
Macintyre, Robert & Co., 4, Bury-st., E.C.
MacLellan, George & Co.. 126, Bishopsgate-st., Within, E.C.
Master & Titford, Luke-st. Finsbury, E.C.
Matthews. Samuel, & Son, 58, Charing-cross, S.W.
Michaelmore & Reap, 36A, Borough-road, S.E.
Moseley, David & Sons, 1, Milk-st., E.C.
Prout, Samuel, 22, Silver-st., W.
Redmund's & Gollop's Works, Charles-st., City-road, E.C.
Rennie, John, 138, High Holborn, W.C.
Ricardo, Elias, 19, Commercial-road East, E.
Rinder & Morgan, East-st., Cambridge-road, E.
Sadler John, 19, Gracechurch-st., E.C.
Scott, Wm. Thos., & Co., Marsh-gate-lane, Stratford, E.
Scottish Vulcanite Co., Limited, 5, Aldermanbury Postern, E.C.
Slater, B., 68, Charles-st., City-road, E.C.
Slater, Hy., 34, Meredith-st., St. John's-st.-rd., Clerkenwell, E.C.
Smith & Turner, 50, Bartholomew-close, E.C.
Stocks & Hornor, 190, Westminster-bridge-road, S.E.
Thompson, G. C. & A., 89, Cannon-st., E.C.
Wartski, Barnett & Son, 118, Commercial-st., E..
Werner & Kœnig, 23, Addle-st., E.C.
Wilkinson, Henry, 17, Clerkenwell-green, E.C.

India Rubber Manufacturers and Dealers.

F.—Caoutchouc (Fab. et Marchands de).
G.—Indiarubber—Fabr.

Allnutt, John Elliot, 75A, Little Britain, E.C.
Ancoats Vale Rubber Co., Limited, 13, Bow-lane, E.C.
Anderson, Abbott & Anderson, 37, Queen Victoria-st., E.C.
Angus, Geo. & Co., 187, Upper Thames-st., E.C.
Barbican India Rubber Co., 1, Barbican, E.C.
Beldam Packing & Rubber Co., 77, Gracechurch-st., E.C.
Bell, H., 154, Guildford-st., York-road, S.E.
Benda Bros., 5 & 6, Winchester-court, Monkwell-st., E.C.
Benham, John & Co., 236, Oxford-st., W.
Benson, Fuston, 59, Upper-st., Islington, N.
Benson, James, 3 & 4, Tottenham-court-rd., W.
BINSWANGER, G. & Co., 29, Aldermanbury, E.C.
Bird, Fredk. & Co., 11, Great Castle-st., Regent-st., W.
Bourne, John & Co., 22, Felton-st., Hoxton, N.
Brettell, J. O. & C. E., 11, Queen Victoria-st., E.C.
Britannia Rubber & Kamptulicon Co., 32, Cannon-st., E.C.
Broadhurst & Co., 63, Bishopsgate-st. Wthn., E.C.
Brook, Hy. & Co., 10, Featherstone Buildings, Holborn, W.C.

Digitized by Google

India Rub. Manfs. & Dealers—*continued.*

Bugden, Thos. & Son, 107, Goswell-road, E.C.
Burge & Warren, 42, Kirby-st., Hatton-garden, E.C.
Burleigh, John & Co., 223, Edgware-road, W.
Carter, James Douglas, 27, St. James' Walk, Clerkenwell, E.C.
Chaplin, Saml. Ford, 150, Borough High-st., S.E.
Cooper, Archbld. Livingstone, 9, London-st., E.C.
Continental Caoutchouc & Gutta Percha Co., 63, Finsbury-pavement, E.C.
Cording, John Chas. & Co., 40, Ludgate-hill, E.C.
Cow (P. B.), Hill & Co., 46, Cheapside, E.C.
Currie, Thomson & Co., 27, Ludgate-hill, E.C.
De Luca, Guiseppe Vincenzs, 6 & 7, Long-lane, Aldersgate-st., E.C.
East London Rubber Co., 3, Gt. Eastern-st., E.C.
Edmiston & Son, 14, Cockspur-st., Charing-cross, S.W.
Edwards & Bradley, 266, South Lambeth-rd., S.W.
Edwards & Co., 64A, Gracechurch-st., E.C.
Fearns, Francis H. & Co., Trafalgar Works, Trafalgar-road, Old Kent-road, S.E.
Fitch, John Wm. & Co., 117, Cheapside, E.C.
FOSTER & WILLIAMS, 87, Grange-road, Bermondsey, S.E.
Franklin, Hy. & Co., 72 to 78, Gedling-st., Dockhead, S.E.
Gander, R. & Co., 20, West India Dock-road, Limehouse, E.
Garratt, Alfred, 70, Cheapside, E.C.
Garrett, Geo. Wm., 205, Kingsland-road, E.
GEERE, CANNY & CO., 123, Fenchurch-st., E.C.
Golding, A., 1, Lavers-rd., Stoke Newington, N.
Great Eastern India Rubber Company, 19, Commercial-road East, E.
Hancock, James Lyne, Goswell-mews and 266, Goswell-road, E.C.
Hanover Vulcanite Co., 63, Finsbury-pavement, E.C.
Harburg & Vienna India Rubber Co., 10, Tower-chambers, Finsbury-pavement, E.C.
Harding, Cocks & Co., 29, Jewry-st., E.C.
Hart Bros., 40, Monkwell-st., Cripplegate, E.C.
Hill, Henry, & Sons, 38, Bow-lane, & 19, Garlick-hill, E.C.
Hill, Zachariah, 1, Ann-st., Islington, N.
Hille, Gus. L., 63, Finsbury-pavement, E.C.
Holland, W. & Co., 207, Edgware-road, W.
Hooke, David Bradwell, 83, Up. Thames-st., E.C.
Hooper's Telegraph & India Rubber Works, 31, Lombard-st., E.C.
Hutchinson, A. & Co., 3 & 4, Great Winchester-street, E.C.
India Rubber, Gutta Percha & Telegraph Works Co., Limited, 106, Cannon-st., E.C.
Ingram, J. G. & Son, Hackney-wick, Mdlsx., E.
Irwell India Rubber & Gutta Percha Works, 6, Billiter-st., E.C.
Lang, Jonas & Jules, 13, Charterhouse-buildings, Aldersgate-st., E.C.
Lee Bros., 3, Westmoreland-buildings, Aldersgate, E.C.

India Rub. Manfs. & Dealers—*continued.*

Levy, Armand, 252, Goswell-road, E.C.
Livermore, Isaac, 3, College-hill, E.C.
Love, Alfred & Co., Old Shot Tower Wharf, Commercial-road, Lambeth, S.E.
Lynch & Co., 192, Aldersgate-st., E.C.
Macintosh & Co., 1, Luke-st., Finsbury, E.C.
Mackintosh & Co., 106, Queen Victoria-st., E.C.
Mackintosh, C. & Co., 19, St. Bride-st., E.C.
Matthews, Saml. & Son, 58, Charing-cross, S.W.
Meiter, C. W. & Co., 86, Gracechurch-st., E.C.
Moseley, D. & Sons, 1, Milk-st., E.C.
NEW YORK HAMBURG INDIA RUBBER CO. (THE), 8, Coleman-st., E.C.
Nisbet, Wm., 128A, Queen Victoria-st., E.C.
Norris, Saml. Edwd. & Co., 56, 57, & 58, High-st., Shadwell, E.
NORTH BRITISH RUBBER CO., LIMITED, 57, Moorgate-st., E.C.
Notting-hill India Rubber Co., 24, High-st., Notting-hill, W.
Quin, Jas. & Co., 112, Queen Victoria-st., E.C.
Richardson, Jas. Edwin, 12, Duke-st., London-bridge, S.E.
Rockhill, Fredk. John & Co., 10, Blackfriars-road, S.E.
Russell, Edwd. & Co., 34A, High Holborn, W.C.
Russell, Henry & Co., 19, Waterloo-road, S.E.
Schoenfeld, J., 21, Jewin-crescent, Aldersgate-st., E.C.
SHEATH BROS., 89, City-road, E.C. *See index to advertisers.*
Smith, John & Co., 87, Blackman-st., S.E.
Spencer, Geo. & Co., 77, Cannon-st., E.C.
Spill, Geo. & Co., 256, Mile-end-road, E.
Thomson, Gavin & Co., Croft-st., Deptford, S.E.
Townshend, Edwin & Son, 25, Belvedere-rd., S.E.
Tuck & Co., Limited, 116, Cannon-st., E.C.
Walkley, Henry & Co., 5, Strand, W.C.
Warne, William & Co., 29, Gresham-st., E.C.
White, John Hutchinson, 12, Burdett-road, E.
Winter, John & Co., 1, Parkside, Knightsbridge, S.W.

Ink (Writing) Manufacturers—*Specially suitable for Telegraph Offices.*
F.—Encre (Fab d').
G.—Dinte-Fabrikanten.

"Climax" Blue-Black Ink, *(very fluid, does not thicken or corrode in hot weather.)* 6, Suffolk-lane, E.C.
Field, James J., Manufacturer of CHEMICAL NON-CORROSIVE INKS, suitable for all climates. 455, Caledonian-road, N.

Inspirator Manufacturers—*Specially suitable to High-speed Engines.*
F.—Inspirateurs (Fab. d')
G.—Inspirator-Fabrikanten.

Hancock (The) Inspirator Co., 35, Queen Victoria-st., E.C.

Digitized by Google

Insulator (Telegraph) Manufacturers.

F.—Isoloirs (Fab. d').
G.—Isolatoren-Fabrikanten.

Apps, A., 433, Strand, W.C. *See index to advertisers.*
Bailey & Co., Fulham Pottery, S.W.
BASTIN, CHARLES, 154, Vauxhall-walk, Lambeth, S.E. Contractor for the Admiralty, (Established 1737). *See index to advertisers.*
Bourne, Joseph & Sons, 6, St. Pancras Station, Euston-road, N.W. Works: Denbyn Pottery, near Derby. *See index to advertisers.*
Buller & Co., 32 and 33, Queen-st., E.C.
CLARK, L., MUIRHEAD & CO., 23, Regency-st., Westminster, S.W.
Cliff, Joseph & Sons, 2 & 4, Wharf, Great Northern Goods Station, Kings Cross, N.
CRYSTAL PORCELAIN POTTERY CO., LIMITED, 23, St. Swithin's-lane, E.C. Works. Cobridge, Stoke-on-Trent. *See index to advertisers.*
Davis & Timmins, Bowling-green-lane, E.C. *See index to advertisers.*
Doulton & Co., 28, High-st., Lambeth, S.E.
Electrical Insulator Manufacturing Co., Ltd., 31, Lombard-st., E.C.
India Rubber, Gutta Percha and Telegraph Works, Co., Ltd., 106, Cannon-st., E.C.
Johnson & Phillips, 14, Union-court, Old-broad-st., E.C. *See index to advertisers.*
Maling, C. T., Ford Pottery, Newcastle-on-Tyne, London Sample Rooms: 20, Bartlett's-bldngs, Holborn-circus, E.C. *See index to advertisers.*
Meiter, C. W. & Co., 86, Gracechurch-st., E.C.
Patent Nut and Bolt Co., Ltd., 7, Laurence-pountney-hill, E.C. Insulator Brackets and Fittings.
Pearson, James, Whittington Moor Potteries, near Chesterfield. London Sample Rooms—20, Bartlett's-buildings, Holborn-circus, E.C. *See index to advertisers.*
Reid Brothers, 12, Wharf-road, City-road, N. *See index to advertisers.*
STIFF, JAMES & SONS, London Pottery, Lambeth, S.E.. (Established 1751). *See index to advertisers.*
WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. Sole Manufacturers of the Patent Split Insulators. *See index to advertisers.*

Inventors—Electrical.

F.—Inventeurs—électriques.
G.—Bureau zur Ausnützung von Erfindungen.

Anders, George Lee, 31, Queen Victoria-st., E.C.
ANGLO-AMERICAN (BRUSH) ELECTRIC LIGHT CORPORATION, LIMITED, 108, Belvedere-road, Lambeth, S.E. *See index to advertisers.*
Eldred, Horace H., 31, Queen Victoria-st., E.C.
Henck, jun., J. B., 31, Queen Victoria-st., E.C.
Husbands, José D., 31, Queen Victoria-st., E.C.
MAYFIELD, J. T., 41, Queen Victoria-st., E.C.
PATERSON & COOPER, 76, Little Britain, E.C. *See index to advertisers.*

Iridium Manufacturers and Dealers.

F.—Iridium (Fab. et Marchands).
G.—Iridium-Fabrikanten.

HOLDSWORTH, SAMUEL, 54, Spencer-st., Clerkenwell, E.C. Speciality—Iridium Points.
Johnson, Matthey & Co., Hatton-garden, E.C.

Iron Founders.

F.—Fondeurs de fer.
G.—Eisengiesserien.

Barrett, R. & Son, Beech-st., Barbican, E.C.
DAVIES, T., Palace-chambers, 9, Bridge-st., Westminster, S.W.
East Ferry Road Engineering Works Co., Millwall, E.
McLaren, Andrew & Co., 175, Upper Thames-st., E.C.
Manlove, Alliott, Fryer & Co., 50, Queen Victoria-st., E.C.
Redpath & Paris, Church-row, Limehouse, E.
Shaw, Matthew T. & Co., 148, Cannon-st., E.C.
Shirlaw, A. & Co., 39, Upper Thames-st., E.C.
STANTON (THE) IRON WORKS CO., LIMITED, Palace-chambers, 9, Bridge-st., Westminster, S.W.
Stevens Bros. & Co., 35 & 36, Upper Thames-st., E.C.
Stewart, J. & Son, Blackwall Iron Works, Isle of Dogs, E.
Williams, Chas. & Co., Ferry Iron Works, Wharf-road, Cubitt Town, E.

Iron Tank Manufacturers.

F.—Résevoirs en fer (fab. de).
G.—Eiserne Bassins.

Appleby & Co., 30, Walbrook, E.C.
Atkins, F. H. & Co., 62, Fleet-st., E.C.
Bellamy, John, Byng-st., Millwall, E.
Braby, Fred. & Co., Limited, 352 to 364, Euston-road, N.W.
Brettell, J. O. & C. E., 11, Queen Victoria-st., E.C.
Burney & Co., Millwall Docks, E.
Burt, J. H. & Co., 1A, Laurence Pountney-hill, E.C.
Croggon & Co., 42, Upper Thames-st., E.C.
Crouch & Jay, Regent's-wharf, Maroon-st., Limehouse, E.
Duncan Bros., 32, Queen Victoria-st., E.C.
East London Galvanizing & Metal Co., Limited, 31, Lombard-st., E.C.
Fraser & Fraser, Bromley-by-Bow, E.
Fraser, W. J. & Co., 98, Commercial-road, E.
Gardner & Co., 38, Rosoman-st., Clerkenwell, E.C.
Gardner, J., Oswald & Co., 134, Fenchurch-st., E.C.
Gospel Oak Iron & Galvanized Iron & Wire Co., 110, Cannon-st., E.C.
Harper, John Robert & Co., 147 & 149, Three Colt-st., E.
Lancaster & Bawn, 49, West India Dock-road, E.
London Galvanized Iron Co., 27, Wharf-road, City-road, N.

Digitized by Google

Iron Tank Manufacturers—*continued.*

Merryweather & Sons, Greenwich-road, S.E.
Morewood & Co., 158, Leadenhall-st., E.C.
Oliver, Geo. & Joseph, 75, Mark-lane, E.C.
Shand, Mason & Co., 75, Upper Ground-st., S.E.
Shaw, M. T. & Co., 141, Cannon-st., E.C.
Simpson & Co., 191, Grosvenor-road, S.W.
Stauffer & Co., 2, Lugard-road, Peckham, S.E.
Taylor, James & Co., 110, Cannon-st., E.C.
Thames Iron Works & Shipbuilding Co., Limited, Orchard-place, Blackwall, E.
Whetford, Wm. & Co., Royal Iron Works, Limehouse, E.
Wilson, Alex. & Co., Vauxhall Iron Works, Wandsworth-road, S.W. *See index to advertisers.*
Wilson, John H. & Co., 110, Cannon-st., E.C.
Wordall Samuel, 84, Cannon-st., E.C.
York Engineering Co., Limited, 89 & 90, Palace-chambers, Bridge-st., S.W.
Young, H. & Co., Hayle-wharf, Nine Elms, S.W.

Jewel Hole Makers.

F.—Perieur de pierres précieuses.
G.—

HOLDSWORTH, SAMUEL, 54, Spencer-st., Clerkenwell, E.C. Jewels for Telegraph purposes, etc.

Lamp Post Manufacturers.

F.—Lampadaires (Fab. de).
G.—Lamppfosten-Fabrikanten.

Beck & Co., Limited, 130, Great Suffolk-st., Southwark, S.E.

Lathe Makers for Electricians.

F.—Tours pour Electriciens (Fab. de).
G.—Drehbanken für Electriker.

PFEIL & CO., 145, 147 & 149, St. John-st., E.C.

Lead Manufacturers.

F.—Plomb (Fondeurs de).
G.—Blei-Fabriken.

Britten & Gilsen, 18, Union-st., S.E.
Chatterton, John, Bridge-wharf, Caledonian-road, N.
Chuck, Lockett & Co., 10, Norton Folgate, E.
Clark, F. A. & Son, Phœnix Lead Mills, Marlborough Wharf, Hammersmith, W.
Cookson & Co., 26, Philpot-lane, E.C.
Enthoven, Hy. John & Sons, 17, Gracechurch-st., E.C.
Familoe, Geo. & Sons, 34, John-st., E.C.
Foster, Blackett & Wilson, 2, Mincing-lane, E.C.
Grey & Martin, City Lead Works, Southwark-bridge, S.E.
James & Co., 28, Queen-st., Cannon-st., E.C.
Johnson & Co., 11, Glo'ster-st., Clerkenwell, E.C.
Lane & Nesham, Old Shot Tower Works, Commercial-road, Lambeth, S.E.
Pontifex (E. & W.) & J. Wood, Shoe-lane, E.C.
QUIRK, BARTON & CO., 61, Gracechurch-st., E.C. *See index to advertisers.*

Lead Manufacturers—*continued.*

Sopwith, T. & Co., 6, Great George-st., S.W.
Storer, D., & Sons, 128, Leadenhall-st., E.C.
Straeten, Edmund Van der, 11, Queen Victoria-st., E.C.
Walker, T. W. & J., 57, Gracechurch-st., E.C.
Walkers, Parker & Co., 63, Belvedere-road, S.E.

Lighthouse Dioptric Apparatus Makers.

F.—Phares (Fab d'appareils dioptriques pour les).
G.—Dioptrische Apparate für Leuchtthürme.

DEFRIES, J. & SONS, 147, Houndsditch, E. *See index to advertisers.*
Wilkins, W. & Co., 24, Long-acre, W.C.

Lightning Conductor Manufacturers.

F.—Paratonnerres (Fab. de cable pour).
G.—Blitzableiter-Fabrikanten.

Apps, A., 433, Strand, W.C. *See index to advertisers.*
Benham & Froud, 40, Chandos-st., W.C.
Binks, Bros., Stratford-st., Millwall, E.
Blackburn, J. (Mr. Henderson, Agent), 66, Frampton-park-road, Hackney, E.
Bossomaier, R. & Co., 72, Finsbury-pavement, E.C.
Bullivant & Co., 72, Mark-lane, E.C.
Chance Bros. & Co., 24, Finsbury-circus, E.C.
CUTTING, R. C. & CO., Wardrobe-chambers, Queen Victoria-st., E.C. *See index to advertisers.*
Dixon, Corbitt & Spencer, 26, Commercial-road East, E.
Ellis, E. & Co., 13, Emmett-st., Limehouse, E.
Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.
GRAY, J. W. & SON, Practical Electricians. City Office, 58, Fenchurch-st., E.C.; and Albert Docks, E. Manufactory, Dore-st., Limehouse, E. Patentees of Conductors as fitted to the Houses of Parliament, the Royal Palaces, the British Museum, the principal Government Buildings, all the Magazines in the country, the principal Cathedrals, Churches, Public and Private Buildings, and H.M. Iron and Composite Vessels.
Hart, Son, Peard & Co., 53, Wych-st., Strand, W.C.
India-Rubber, Gutta-Percha, and Telegraph Works Co., Limited, 106, Cannon-st., E.C.
Johnson & Phillips, 14, Union-court, Old Broad-st., E.C. *See index to advertisers.*
Markham, T. T., 102, Fetter-lane, E.C.
Morton, Francis & Co., Ld., 1, Delahay-st., S.W.
Newall, R. J. & Co., 130, Strand, W.C.
PATERSON & COOPER, 76, Little Britain, E.C. *See index to advertisers.*
Reid Bros., 12, Wharf-road, City-road, N. *See index to advertisers.*
SANDERSON & CO., Leadenhall-house, 101, Leadenhall-st., E.C.
Signal Engineering Co., 181, High Holborn, W.C. *See index to advertisers.*
Smith, Geo. & Son, 59, Martin-st., Jamaica-rd., Bermondsey, S.E.
Weston, G. & Co., 92, Mile End-road, E.
Tidge, Stevens & Co., Brunswick Works, Robin Hood-lane, Poplar, E.

Digitized by Google

Lubricant Manufacturers.

F.—Huiles à lubrèfier (Fab. d')
G.—Maschinen-Oele.

Englebert & Co., 70, Bishopgate-st. Within, E.C. Patentees and Sole Manufacturers of "Engelbert's Lubricator" (Lubricant).
Pittam, John & Co., Augusta Oil Mills, Poplar, E.

Lubricator Makers for Electric Machines and Engines.

F.—Lubricateurs (Fab. de).
G.—

Clarke & Dunham, 69, Mark-lane, E.C.
Dewrance, John & Co., 158, Great Dover-st., S.E.
ETHERINGTON, J., 39A, King William-st., E.C. *See index to advertisers.*
Lieuvain's Patent Needle Lubricator, 24, Mark-lane, E.C.
WILLCOX, W. H. & Co., 36, Southwark-st., S.E. Needle and other Lubricators.
Wright, Robert Alfred & Co., 178, High-st., Homerton, E.

Machine Manufacturers & Machinists.

F.—Machines (Constructeurs de)
G.—Maschinen-Constructeure.

Ibbotson Bros. & Co., 4, Westminster-chambers, Victoria-st., Westminster, S.W.
SELIG, SONNENTHAL & CO., 85, Queen Victoria-st., E.C. Lathes, Planing, Shaping, Milling, Drilling, and Screwing Machines. *See index to advertisers.*
Wilson, A. & Co., Vauxhall Iron Works, Wandsworth-road, S.W. *See index to advertisers.*
Worssam, Samuel & Co., Oakley Works, King's road, Chelsea, S.W.

Machine Strap Fastener Makers.

F.—Agraffes de courroies (Fab. d').
G.—Maschinenriem-Halter.

Chase, W. H., 103, Fenchurch-st., E.C.
SELIG SONNENTHAL & CO. ("SONNENTHAL'S PATENT"), 85, Queen Victoria-st., E.C. *See index to advertisers.*

Machine Strap Makers.

F.—Courroies de transmission (Fab. de).
G.—Maschinenriem-Fabrikanten.

Burt, J. H. & Co., 1A, Laurence Pountney-lane, E.C.
Clarke, John, 16, Major-road, Jamaica-road, S.E.
Cobbett, W. Wilson, 60, Queen-Victoria-st., E.C.
Corcoran, Bryan, 31, Mark-lane, E.C.
Fleming, Thomas & Son, 37, Queen-Victoria-st., E.C.
Franklin, Hy. & Co. 72 to 78, Gedling-st., Dockhead, S.E.
French, John & Co., 71 & 73, Commercial-st., E.
Goodwin, Wm. & Co., 36, Primrose-st., Bishopsgate, E.C.

Machine Strap Makers.—*continued.*

Harbord, Henry, Millstream-road, Dockhead, S.E.
Henderson, H. & Sons, 63, Bishopsgate-st. Within, E.C.
Hole, Edward & Co., 36, Seething-lane, E.C.
Holgate & Co., 33, Gt. Dover-st., Borough, S.E.
Jamaiker Bros., 54, Church-st., Minories, E.
Mapplebeck (Howard) & Co., 19, Gracechurch-st., E.C.
Matthews, Thos., 150, High-st., Camden Town, N.W.
Morgan & Son, 217, Blackfriars-road, S.E. *See index to advertisers.*
Ormerod, O. & W., 70 & 71, Bishopsgate-st. Within, E.C.
Potier, Wm. & Son, 33, Green-st., Wellington-st., Blackfriars-road, S.E.
Preller's Leather Co., 57, Lant-st., S.E.
Ross, Alex. & Co., Grange Mills, Wright's-buildings, Grange-road, Bermondsey, S.E.
Stevens, Pellatt & Co., 57, Lant-st., S.E.
Tuck & Co., Limited, 116, Cannon-st., E.C.
Tullis, John & Son, 110, Cannon-st., E.C.
Turton Bros. & Matthews, 34, Gracechurch-st., E.C.
Webb & Son, 11, Leadenhall-st., E.C.
Wild, Augustus & Co., 51, Gt. Dover-st., S.E.
Willcox, W. H. & Co., 36, Southwark-st., S.E.

Machine Tool Makers.

F.—Machines Outils (Fab. de)
G.—Maschinen-Werkzeug.

Andrew & Co., 135, Commercial-st., E.
Bolling & Lowe, 2, Laurence Pountney-hill, E.C.
Butterfield, F. & J. & Co., 16, Bishopsgate-st. Without, E.C.
Churchill, Chas. & Co., 21, Cross-st., Finsbury, E.C.
Collier, Wm. & Co., 60, Queen Victoria-st., E.C.
Cotton & Johnson, 21 & 23, Grafton-st., Soho, W.C.
Dean, Smith & Grace, 33, Cornhill, E.C.
Dudgeon, Richard, 114, Fenchurch-st., E.C. Hydraulic Jacks & Punches, Roller Tubes, Expanders, Steam Hammers, &c. *See index to advertisers.*
DUNCAN BROS., 32, Queen Victoria-st., E.C. *See index to advertisers.*
Embleton & Co., 46, Tower-chambers, Moorgate-st., E.C.
Fairbairn, Kennedy & Naylor, 26, Parliament-st., S.W.
Fenn & Co., 10, Railway-approach, S.E.
Hudson, W. & Co., 15, Devonshire-st., E.
Hutton & Co., 1, Scott's-yard, Bush-lane, E.C.
Ibbotson Bros. & Co., 4, Westminster-chambers, Westminster, S.W.
Kendall & Gent, 11, Queen Victoria-st., E.C.
Kershaw, J. & J., 27, Leadenhall-st., E.C.
King, C., Wilden & Co., 41 & 42, Parliament-st., S.W.
London Bros., 156, Upper Thames-st., E.C.
Mackenzie, Jas., & Co., 150, Leadenhall-st., E.C.
Maclea & March, 19, Walbrook, E.C.

Digitized by Google

Machine Tool Makers—*continued.*

Maddever, Wm. Coombe, 124 & 126, Commercial-st., E.
Marples, Wm. & Sons, 14, Ivy-lane, E.C.
Miller, M. & Ira, 31, Spital-square, Bishopsgate, E.
Muir, Wm. & Co., 2, Walbrook, E.C.
New & Co., 15, Devonshire-chambers, Bishopsgate-st. Without, E.C.
Orme, Fredk. & Co., 9, St. Andrews-st., E.C.
Patent Ingersoll Rock Drill, 60, Queen Victoria-st., E.C.
Reid Wm., & Co., 11, Hart-st., Mark-lane, E.C.
Ruffles & Butcher, 6, Wormwood-st., E.C.
Selig, Sonnenthal & Co., 85, Queen Victoria-st., E.C. *See index to advertisers.*
Shorey, Clark & Co., 5, Pennyfields, Poplar, E.
Slater, James & Co., 251, High Holborn, W.C.
SMITH G. (agent for Maclea & March), 19, Walbrook, E.C.
Smith, Beacock & Tannett, 1, Westminster-chambers, S.W.
Spencer, John & Co., 86, Queen-st., E.C.
TANGYE BROS., 35, Queen Victoria-st., E.C. *See index to advereisers.*
Turton, Thos. & Sons, 90, Cannon-st., E.C.

Magnesium Manufacturers.

F.—Magnesium (Fab. de).
G.—Magnesium-Fabriken.

Johnson, Matthey & Co., Hatton-garden, E.C.

Magnet Manufacturers.

F.—Aimants (Fab. d').
G.—Magnete—Verfertiger.

LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; and 42, Rue de Ruysbroeck, Brussels. Permanent Magnets for all systems of Telephone.

Magnetic Curative Appliance Manufacturers.

F.—Appareils médicaux (Fab. d')
G.—Magnetische Heilapparate.

Armbrecht, Nelson & Co., 23, Duke-st., Grosvenor-square, W.
Cole, J., 248 & 250, Caledonian-road, N.
Darlow & Co., 443, Strand, W.C.
Eley & Co., 192, Sloane-st., S.W.
Fearns, Francis H. & Co., Trafalgar Works, Trafalgar-road, Old Kent-road, S.E.
GARRATT, B. C., 16, Finsbury-square, E.C.
India-Rubber, Gutta-Percha, and Telegraph Works Company, Limited, 106, Cannon-st., E.C.
Lindsey Bros., 55, Borough High-st., S.E.
Lonsdale, Richard & Co., 447, West Strand, W.C.
Martin's, 272, Regent-st., W.
MEDICAL CONSTANT CURRENT ELECTRIC CO., Limited, 38, Lombard-st., E.C. *See index to advertisers.*
Player, 57, Poland-street, Oxford-st., W.

Mag. Cur. Appliance Manfs.—*continued.*

Scrivener, Gill & Co., 221, Regent-st., W.
WHITING, HENRY GOTHWICKE, A.P.S. & M.S.A., Medical Electrician of nearly thirty years' experience, 11, Poultry-chmbrs., Cheapside and Queen Victoria-st, London, E.C.; Crystal Palace, Sydenham; & 36, Calverley-rd., Tunbridge Wells. WHITING'S PATENT MAGNETOD APPLIANCES have been tested in FOURTEEN different COUNTRIES, and found more curative than any remedy yet discovered. They have been worn by ROYALTY in several instances; and H. G. W.'s patrons comprise many of the CHIEF ARISTOCRACY of THIS and OTHER COUNTRIES. The Magnetod treatment is approved by LEADING PHYSICIANS; their testimony in its favour is CLEAR and DECISIVE. In HUNDREDS OF CASES these appliances have cured when EVERY 'OTHER method failed. They are painless and safe, inexhaustible, and adaptable to all, giving comfort and strength. They cure the worst forms of Bronchitis, Asthma, Rheumatic Gout, Sciatica, Neuralgia, Indigestion, Liver and kidney Diseases, Extreme Debility, etc. CONSULTATION FREE at the City Depôt, where Electricity in its best and painless forms is applied daily by Electricians of long experience. Pamphlets and list of DISTINGUISHED PATRONS forwarded free.
Wright & Co., 188, Wardour-st., Soho, W.

Mathematical Instrument Makers.

F.—Instruments de mathematique (Fab. d').
G.—Mathematische Instrumente—Verfertiger.

Adie, Patrick, 15, Pall Mall, S.W.
APPS, A., 433, Strand, W.C. *See index to advertisers.*
Aston & Mander, 25, Old Compton-st., W.
Baker, Chas., 244, High Holborn, W.C.
Barker & Son, 12, Clerkenwell-road, E.C.
Bennett, Sir John, 64 & 65, Cheapside, E.C.
Bottomley, Robt. Forster, 11, Billiter-st, E.C.
Boulter, Alf., 7½, St. John's-lane, Clerkenwell, E.C.
Bray, Wm. Thos., 536, Old Ford-road, Bow, E.
Breedon, Jas. Chas., 13, Douglas-st., Deptford, S.E.
Browning, J., 63, Strand, W.C.
Buckland, Wm., 30, Wilmington-square, W.C.
Caplatzi, Antonio, 3, Chenies-st, Bedford-square, W.C.
Casartelli, Joseph, 34, Hatton-garden, E.C.
Casella, L., 147, Holborn-bars, W.C.
Cooper, Chas. Thomas, 86, Gt. Dover-st., S.E.
Cowland, Geo,, 30, Hosier-lane, West Smithfield, E.C.
Coyen, Carmouche, 56, Hatton-garden, E.C.
Dollond & Co., 1, Ludgate-hill, E.C.
DRING & FAGE, 145, Strand, W.C.
Elliott Brothers, 449, Strand, W.C.

Digitized by Google

Mathemat. Intrument Makers—*continued.*

Eyre & Spottiswoode, Great New-st, Fetter-lane, E.C.
Gent, George, 96, Rosoman-st., Clerkenwell, E.C.
Green, Wm. 5, Mount Pleasant, Clerkenwell, E.C.
Gregory, Wm., 51, Strand, W.C.
Groves, Richard P., 90, Chapel-st., Pentonville, N.
HARLING, W. H., 40, Hatton-garden, E.C.
Holtzapffel & Co., 64, Charing-cross, S.W.
Horne & Thornthwaite, 416, Strand, W.C.
How, J. & Co., 73, Farringdon-st., E.C.
Hudson, Alf. & Co., 34, Hatton-garden, E.C.
Hudson & Son, Stockwell-st., Greenwich, S.E.
Hughes, Henry & Son, 59, Fenchurch-st., E.C.
Hunter & Sands, 20, Cranbourn-st., W.C.
Lejeune & Perken, 24, Hatton-garden, E.C.
Medland, J. B., 12, Borough, London-bridge, S.E.
Murray & Co., 22, St. John's-square, E.C.
Negretti & Zambra, Holborn Viaduct, E.C.
Neu, Gustave, 29, King-sq., Goswell-road, E.C.
Nicholl, Robt., 153, High Holborn, W.C.
Panier, E., 37, Farringdon-st., E.C.
Pastorelli, Frank & Co., 10, New Bond-st., W.
Pearce, James, 13, Bedfordbury, W.C.
Pillischer, Moritz, 88, New Bond-st., W.
Pye, William Chas., 16, Nelson-terrace, City-road, N.
Ross & Co., 112, New Bond-st., W.
Scott, Jas. George, 17, Bermondsey Wall, S.E.
Short, John, 2, Gladstone-st., London-road, S.E.
Short & Mason, 40, Hatton-garden, E.C.
Sloper, William, 30, Lambeth-road, S.E.
Smith, Fredk., 91, Brunswick-st., Hackney-road, E.
STANLEY, W. F., 4, Great Turnstile, Holborn, W.C., & 13, Railway Approach, London Bridge, S.E.
Stone, Wm., 44, Gloucester-st., W.C.
Swainsland, Henry, 3, Offord-road, N.
Tremlett, Richd., 9, Myddleton-st., E.C.
Troughton & Simms, 138, Fleet-st., E.C.
Watson, Thos., W., 4, Pall Mall, S.W.
Watts, Edmund Richd., 123, Camberwell-road, S.E.
West, John George & Co., 92 & 93, Fleet-st., E.C.
Wood, Edward Geo., 74, Cheapside, E.C.
Wood, Hy. Joseph, 185, Oxford-st., W.

Medical Battery Manufacturers—Galvanists and Electricians.

F.—Piles medicales (Fab. de) Galvanistes et Electriciens.
G.—Galvanisirmaschinen.

APPS, A., 433, Strand, W.C. *See index to advertisers.*
Coxeter, J., & Son. Only Prize Medal awarded specially for Medical Electricity, Paris, 1881, and Crystal Palace, Sydenham, 1882. 23 & 24, Grafton-st. East, Tottenham Court-road, W.C.
DALE, H. & E. J., 4, Little Britain, E.C.; & 26, Ludgate-hill, E.C. *See index to advertisers.*

Medical Battery Manfs.—*continued.*

Didier, A., 10, Berkeley-gardens, Kensington, W.
Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.
GARRATT, BENJAMIN COPSON, 16, Finsbury-square, E.C. Mr. Garratt's Special System of Magneto-Electric Treatment consists in the Application of Aura, or Currents discharged from Permanent Magnets enclosed in various Garments, Energising Nerve Centres and Vital Organs simultaneously. Specimens of his Magneto-Electric Appliances were exhibited at the International Exhibitions of Electricity in Paris and London, and at the Brighton Health Congress. The extreme lightness and flexibility of the Magnets employed permit the concentration of a high degree of power on any part without inconvenience or objectionable weight. They also possess the merit of retaining their powers indefinitely—thus ensuring in Chronic Complaints all the advantages usually obtained by more expensive and inconvenient methods of applying Electricity. Mr. Garratt's published Essays on the Philosophy of Health, and the Art of Healing may be obtained gratis at his Consulting Rooms, 16, Finsbury-square, E.C., or Crystal Palace, Sydenham, S.E.
General Electric Apparatus Company (The), 29, Aldermanbury, E.C. Makers of the Patent Portable Silver Battery.
India Rubber, Gutta Percha, & Telegraph Works Company, Limited, 106, Cannon-st., E.C.
LEVY, ARMAND, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris, & 42, Rue de Ruysbroeck, Brussels. Electrical Sundriesman.
Lobb, H., 66, Russell-square, Bloomsbury, W.C.
Lonsdale, R. & Co., 447, Strand, W.C.
Piggott, W. P., 16, Argyll-st, Regent-st., W.
Pulvermacher, J. L. & Co., 194, Regent-st., W.
Thistleton, J. B., 1, Old Quebec-st, Portman-square, W.
Thompson, R., 5, Devonshire-square, Bishopsgate-st. Without, E.
WHITING, HENRY GOTHWICKE, A.P.S. & M.S.A., 11, Poultry, E.C.

Melters.

F.—Fondeurs.
G.—Schmelzer.

Barnes, Jas., 41, Essex-road, N.
Brecknell, Turner & Sons, 31 & 32, Haymarket, S.W.
Broach, Geo., Belle Isle, York-road, King's Cross, N.
Cook, Edwd. & Co., East London Soap Works, Bow, E.
Cook, Fontaine & Co., 62, Fanshaw-st, Hoxton, N.
Ewen, Jas. & Sons, 5, Hatfield-st., Blackfriars, S.E.

Digitized by Google

Melters—*continued.*

Johnson, Geo. & Son, 174 & 175, Bishopsgate Without, E.C.
Mendey, Robt. S., 106, Fenchurch-st., E.C.
Mitchell, Alex & Co., 393, New North-road, N.
Nettelfield & Co., Bow Common, E.
Petty & Co., 16 & 18, Dock-st., London Docks, E.
Rea, Wm. Richard, 3, Greek-st., Soho, W.
Richardson, Chas., Bow Common-lane, E.
Seaborn, Geo. Thos., jun., Marshgate-lane, Stratford, E.
Sharp, Alfred, Edward-st. East, Deptford, S.E.
Streeton, Wm. & Fras., Cobbett's-lane, Rotherhithe, S.E.
Symes, Saml., Belle Isle, York-road, King's Cross, N.
Wickens, Saml. & Co., Glaucus-st., Bow Common, E.
Willis, Edmund, 16, 17 & 18, Peter-st., Soho, W.
Wratton, Jas. Thos., 229, Old Ford-road, Bow, E.

Merchants—Chemical.

F.—Marchands—produits chemiques.
G.—Händler in Chemikalien.

Beckles, S. H. & Co., 6, Lime-st.-square, E.C.
Berk, Fredk. Wm. & Co., 1, Fenchurch-avenue, E.C.
Christopherson, Clifford & Co., 17, Great Tower-st., E.C.
Clarke, Hy. Berger, 37, Great Tower-st., E.C.
Coste & Co., 19 & 20, Water-lane, E.C.
Dasnières, C., 16, Philpot-lane, E.C.
Frank, Theodore, 1, Scott's-yd., Bush-lane, E.C.
Gross, Charles & Co., 9, Mincing-lane, E.C.
Hecker, Paul & Co., 14, Mincing-lane, E.C.
James, John, 25, Walbrook, E.C.
Knight, Hill & Co., 18, Billiter-st., E.C.
Le Sueur & Co., 24,25 & 27, Rood-lane, E.C.
Levermore Bros., 13, Cullum-st., E.C.
Lisner, Hooper & Co., 7, Mincing-lane, E.C.
McAllum, C. O. & Herbert, 60, Gracechurch-st., E.C.
Middleton, Kirkpatrick & Barr, 4, Cullum-st., E.C.
Pugh, George, Dunster-house, Mincing-lane, E.C.
Pütz, Francis Joseph, 79, Mark-lane, E.C.
Ready, Alf. John, 47, Tower-chambers, Finsbury-pavement, E.C.
Reed, Michael Alf. & Co., 12, Fenchurch-st., E.C.
Savary, Young & Co., 39, Lombard-st., E.C.
Smith, Hy. Samuel & Co., 8, Cullum-st., E.C.
Spence, John Berger, & Co., 31, Lombard-st., E.C.
Spies Bros. & Co., 63, Great Tower-st., E.C.
Storer, D. & Sons, 128, Leadenhall-st., E.C.
Victoria Wharfing & Manufacturing Company (The), Wick-lane, Old Ford-road, Bow, E.
Zumbeck, August & Co., 21, Mincing-lane, E.C.

Merchants—Lead.

F.—Marchands—Plomb.
G.—Blei-Händler.

Ashton, John C., 70, Essex-road, N.
Barker, Edwyn John, jun., 162, Sloane-st., S.W.

Merchants—Lead—*continued.*

Beard, Dent & Hellyer, 21, Newcastle-st., Strand, W.C.
Bloyd, Watson & Co., 11, Duke-st., Londonbridge, S.E.
Bolding, J. & Sons, 19, South Molton-st., Oxford-st., W.
Boot, Hy., Ross & Co., 27, Crosby Hall-chambers, E.C.
Calnan & Co., 159, Commercial-road-east, E.
Carter, Benj., 228, Jubilee-st., Commercial-road-east, E.
Cartwright, Mead & Purvis, 4, Water-lane, E.C.
Chatterton, John, Bridge Wharf, Caledonian-road, N.
Chuck, Lockett & Co., 10, Norton Folgate, E.
Clark, F. A. & Son, Marlborough Wharf, Hammersmith, W.
Conolly, Hy., 53 & 55, Hampstead-road, N.W.
Cook, Geo. Edwin, 281, City-road, E.C.
Crapper, Thomas & Co., 50 and 52, Marlborough-road, Chelsea, S.W.
Dahm, George, 9, Mincing-lane, E.C.
Day, Francis & Faithfull, Guildford Paper Works, Guildford-st., York-road, Lambeth, S.E.
Dent & Hellyer, 21, Newcastle-street, Strand, W.C.
Dickson & Head, 79—81, St. George's-st., East Smithfield, E.
Emanuel A. & Sons, 53, 55 & 57, Marylebone-lane, Oxford-st., W.
Emanuel & Cohen, 82, Newington-causeway, S.E.
Evered, R. & Co., Limited, 27, Drury-lane, W.C.
Farmiloe, T. & W., 19, Rochester-row, Vauxhall-bridge-road, Westminster, S.W.
Fisher, Hugh D. & Co., 110, Cannon-street, E.C.
Flint, Wm., 16, Fortess-road, Kentish Town, N.W.
Foster, Blackett & Wilson, 2, Mincing-lane, E.C.
French, Wm. & Son, 30, Commercial-st., Whitechapel, E.
Froy, Wm. N., 64 and 66, King-st. West, Hammersmith, W.
Goslett, Alf. & Co., 26, Soho-square, W.
Grey & Marten, Southwark-bridge, S.E.
Griffiths, Berdoe & Co., 34, Leadenhall-street, E.C.
Hamblen, Chas., 1a, Sherringham-terrace, Westbourne-road-east, Liverpool-road, N.
Harford & Bristol Brass Co., Golden Heart-wharf, Dowgate, Upper Thames-st., E.C.
Harriss, Hy. Morriss, 58a, Newington-causeway, S.E.
Holloway, Fredk., 341A, Kingsland-road, E.
Hubbuck, Thomas & Son, 24, Lime-st., E.C.
Hunning Bros., 150, Holloway-road, N.
Johnson, W. W. & R. & Sons, 737, Commercial-road-east, E.
Keene, Alf., 111, St. John's-road, Hoxton, N.
Lead Company, 9, Martin's-lane, E.C.
Locke, Lancaster & Co., St. Peter's-chambers, Cornhill, E.C.
Millington, T. & Co., 43, Commercial-st., E.
Neale, Geo. Wm., 150, Leadenhall-st., E.C.

Digitized by Google

Merchants—Lead—*continued.*

Neufville, Wm. D., 4, Cullum-st., E.C.
Nevill, Druce & Co., 13, Sherborne-lane, E.C.
Niblett, Geo. D., 16, Wharf, Hertford-road, Kingsland, N.
Nicholls, Chas. Thomas, 37, Kentish-town-road, N.W.
Nicholls & Clarke, 6, Shoreditch High-st., E.
Nicholson, Jas. & Co., 214, Upper Thames-st., E.C.
Page, Henry & Co., 195, Whitechapel-road, E.
Panther Lead Company, Limited, 2, Queen-st.-place, E.C.
Phillips & Hill, 27, Martin's-lane, E.C.
Port Nigel Lead Company, 7, Union-court, Old Broad-st., E.C.
QUIRK, BARTON & CO., 61, Gracechurch-st., E.C. *See index to advertisers.*
Ramsey, William, 55, Farringdon-st., E.C.
Reed, Michael Alf. & Co., 12, Fenchurch-st., E.C.
Robey, John Thomas, 194, Bow-road, E.
Savary, Young & Co., 39, Lombard-st., E.C.
Schwann & Co., 6, Moorgate-st., E.C.
Shaw, George, 20, King Edward-st., Newgate-st., E.C.
Simpson, John H. & Co., 52, London-road, S.E.
Southwark Lead & Glass Co., Rose-alley-warehouses, Park-st., Borough, S.E.
Soutter, Andrew G. & Co., 9, Bury-st., St. Mary Axe, E.C.
Spencer, Fredk. Geo., 298, Euston-road, N.W.
Stark & Law, The Grove, Southwark-st., S.E.
Storer, David & Sons, 128, Leadenhall-st., E.C.
Storer, James & Co., 2, King William-st., E.C.
Strong & Co., 36, St. Martin's-lane, W.C.
Syer, Alfred, 444, Holloway-road, N.
Syer, Horace, 31, High-st., Notting-hill, W.
Tolhurst, John & Sons, 60—63, Tooley-st., S.E.
Tudors, Mash & Co., 17, College-hill, E.C.
Walkers, Parker & Co., 63, Belvedere-road, S.E.
Wilson, G. L. & Co., High-road, Tottenham, Middlesex.
Winkworth, G. E., 62, Crogsland-road, Kentish-Town, N.W.
Young, John, 321, Kennington-road, S.E.

Merchants—Manganese.

F.—Marchands—Manganèse.
G.—Braunstein-Händler.

British Manganese Co., Limited, 2, Drapers'-gardens, E.C.
James, C. & Co., Laurence Pountney-hill, Cannon-st., E.C.
Macqueen, J. & Son, 11, Old Jewry-chambers, E.C.
NIGHTINGALE, G. P., 83, Upper Thames-st., E.C. East India merchant, agent for and importer of manganese copper ore, &c.
Smithers, Fredk. Oldershaw, St. Bene't-chmbrs., Fenchurch-st., E.C.
Wedekind, H., 158, Fenchurch-st., E.C.
Wolff, R. & Co., 9, Fenchurch-st., E.C.

Merchants—Mercury.

F.—Marchands—Mercure.
G.—Mercur-Händler.

Johnson, Matthey & Co., Hatton-garden, E.C.
WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. Stock kept prepared ready for use. *See index to advertisers.*

Merchants—Mica.

F.—Marchands—Mica.
G.—Glimmer-Händler.

Baker, R. & Co., 9, Mincing-lane, E.C.
Davis, S., 104, Ladbroke-grove, Notting-hill, W.
Guthrie, J., 22, Norfolk-road, Essex-road, N.
Johnson, C., 87, New Oxford-st., W.C.
Kloepffer & Co., 23, Charles-st., Hatton-garden, E.C.
SELINGER, M., 23, Charles-st., Hatton-garden, E.C.
Taylor & Co., 60, Hatton-garden, E.C.
Ungar, J. & Co., 32, Commercial-st., E.

Merchants—Tin.

F.—Marchands—Etain.
G.—Zinn-Händler.

Bolitho, Thos. & Wm., 39, Lombard-st., E.C.
Company of Cornish Tin Streamers, Limited (The), 32, Walbrook, E.C.
Daubuz & Co., 12, Dowgate-hill, E.C.
Girvin, Robt., jun., 21, Bush-lane, E.C.
Grey and Marten, Southwark-bridge, S.E.
Hughes, Chemery & Co., 83, Gracechurch-st., E.C.
Jones Bros. & Co., 16, Devonshire-st., Bishopsgate Without, E.
Neale, Geo. Wm., 21 & 22, Bush-lane, E.C.
Phelps, James & Co., 16, Leadenhall-st., E.C.
Phillips & Hill, 27, St. Martin's-lane, E.C.
QUIRK, BARTON & CO., 61, Gracechurch-st., E.C. *See index to advertisers.*
Redruth Tin Smelting Co., Golden Heart-wharf, Dowgate, E.C.
Rocks Tin Mining Co., Lim., 32, Walbrook, E.C.
Skirrow & Mortlock, 198, Upper Thames-st., E.C.
Ward, Wm. Edwin, 49, James-st., Bethnal-green, E.
Williams, Harvey & Co., 26, Upper Thames-st., E.C.

Merchants—Zinc.

F.—Marchands—Zinc.
G.—Zink-Händler.

Ash & Lacy, 122, Cannon-st., E.C.
Ashby, Morris, 17, Laurence Pountney-lane, E.C.
Aston, John C., 70, Essex-road, N.
Barns, Wm. & Son, Christopher Works, Charlton-st., Somers Town, N.W.
Belleroche, Edward, 10, London-st., E.C.
Braby, Fredk. & Co., 352 to 364, Euston-rd., N.W

Digitized by Google

Merchants—Zinc—*continued.*

Bromert, F. & Co., 98, Cannon-st., E.C.
Brooks, Phillips & Co., 5, 6 & 7, Paddington-green, W.
Cadiôt, E. H., 6, Lime-st., E.C.
Calnan & Co., 159 and 161, Commercial-road, E.
Candler, Geo., Brixton-hill, S.W.
Chattock, Richd. Farmer, 83 Upper Thames-st., E.C.
Chuck, Lockett & Co., 10, Norton Folgate, E.
Conolly, Hy., 53 & 55, Hampstead-road, N.W.
Cook, George Edwin, 281, City-road, E.C.
Croggon & Co., 42, Upper Thames-st., E.C.
Dahm, George, 9, Mincing-lane, E.C.
Devaux, C. & Co., 62, King William-st., E.C.
Francotte, Pirlot & Co., 3, Brabant-court, E.C.
Freund, Henry, 16, Fuller-st., Bethnal Green, E.
Grey & Marten, Southwark-bridge, S.E.
Harrison, Geo., 20, Drury-lane, W.C.
Hayward, D. & Co., 96 & 97, Blackman-st., S.E.
Hubbuck, T. & Son, 24, Lime-st., E.C.
LEVY, ARMAND, 252, Goswell-road, London, E.C.; 42, Rue de Ruysbroeck, Brussels; and 34, Rue d'Hauteville, Paris. Electrical sundriesman. Rods, sheet cylinders, and all castings.
Lichtwitz, Ludwig, 1, Tavistock-crescent, Westbourne-park, W.
London Zinc Mills, Limited, Wenlock-road, N.
Osborn, J. Lee, 16, Philpot-lane, E.C.
Pontifex, E. & W., & J. Wood, Shoe-lane, E.C.
QUIRK, BARTON & CO., 61, Gracechurch-st., E.C. *See index to advertisers.*
Rownson, Drew & Co., 225, Upper Thames-st., E.C.
Shaw's Brow Iron Co., 93, Upper Thames-st., E.C.
Smith, John & Sons, 18, 23, 24, St. John's-square, E.C.
Stark & Law, The Grove, Southwark-st., S.E.
Treggon & Co., Limited, 19, Jewin-st., E.C.
Vieille Montague Zinc Co., Fitzroy Works, 352 to 364, Euston-road, N.W.
Vivian & Sons, Bond Court House, 3, Bond-court, Walbrook, E.C.

Metal Merchants.

F.—Métaux (Marchands de).
G.—Metall-Händler.

Back & Manson, 36, New Broad-st., E.C.
Bennett, Geo. & Sons, 10 & 11, Mincing-lane, E.C.
BENNETT, W., 60, Gracechurch-st., E.C.
Bessler, Waechter & Co., 123, Bishopsgate-st. Within, E.C.
Birmingham Battery & Metal Co., 21, Gresham House, E.C.
Blakemore, V. & R., 8, Lime-st., E.C.
Bolling & Lowe, 2, Laurence Pountney-hill, E.C.
Boundy, Wm., 101, Leadenhall-st., E.C.
Boyd, Mackinlay & Co., 27, Walbrook, E.C.
Branders, Goldschmidt & Co., 8, Austinfriars, Old Broad-st., E.C.

Metal Merchants—*continued.*

Brooker, Dore & Co., 4, Corbet-court, Gracechurch-st., E.C.
Burt, J. H. & Co., 37, Gracechurch-st., E.C.
Cadiôt, E. H., 6, Lime-st., E.C.
Campbell, John & Co., 52, Gracechurch-st., E.C.
Chapman, Edward, 34, Great St. Helen's, E.C.
Clifford, Chas. & Son, 148, Gresham House, E.C.
Croggon & Co., 200, Upper Thames-st., E.C.
Crossley & Co., 53, Gracechurch-st., E.C.
Dahm, George, 9, Mincing-lane, E.C.
Daunt, Wm. H., 11, Queen Victoria-st., E.C.
Davies, Wm. Grimoult & Co., 57, Gracechurch-st., E.C.
Dennis Bros. & Co., 24, Martin's-lane, E.C.
Dennis, Wm. F. & Co., 101, Leadenhall-st., E.C.
DESMOUTIS, H. & F., LE BRUN & CO., 8, Southampton-st., Strand, W.C.
Dewrance, John & Co., 158, Great Dover-st., S.E.
Dibley, Geo. & Son, 11, Queen Victoria-st., E.C.
Elliott's Metal Co., 93, Cannon-st., E.C.
Evans, Dury, 35, Queen Victoria-st., E.C.
Everitt (Allen) and Sons, 118, Cannon-st., E.C.
Firmin, Hill & Co., 3 & 4, Great Winchester-st., E.C.
Gordon, Alex. McCallum & Co., 40, Great Tower-st., E.C.
Hitchins, T. F., Bedford & Co., 16, Rood-lane, E.C.
Howe, Wm. & Co., 4, St. Helen's-place, E.C.
Hughes, Chimery & Co., 83, Gracechurch-st., E.C.
Hyman, David, Iron Wharf, Thornhill-bridge, 135, Caledonian-road, N.
Ibbotson Bros. & Co., 4, Westminster-chambers, Victoria-st., Westminster, S.W.
Livingston, James, 34, Gracechurch-st., E.C.
McArthur, Wm., Son & Co., 150, Leadenhall-st., E.C.
McLean Bros. & Rigg, 118, Cannon-st., E.C.
Muntz's Metal Co., 9, Fenchurch-st., E.C.
Omerod & Co., 59, Mark-lane, E.C.
ORMISTON & CO., 25 & 27, Old-st., St. Luke's, E.C. *See index to advertisers.*
PFEIL & CO., 145, 147, 149, St. John-st., E.C.
Phillips & Hill, 27, Martin's-lane, Cannon-st., E.C.
PHOSPHOR BRONZE CO., Sumner-st., Southwark, S.E. Sole manufacturers of phosphor bronze and silico bronze. *See index to advertisers.*
Rundell, Son & Co., 53-57, High-st., Poplar, E.
Skirrow & Mortlock, 190, Upper Thames-st., E.C.
Spence, J. B. & Co., 31, Lombard-st., E.C.
Spencer, J. E. & S., 97, Cannon-st., E.C.
Stanton Bros., 73, Shoe-lane, E.C.
SMITH & SONS, J., 18, St. John's-square, Clerkenwell, E.C.
Wallace, John & Co., 81, Gracechurch-st., E.C.

Meteorological Instrument Makers.

F.—Appareils de météorologie (Fab. d')
G.—Meteorologische Instrumente.

Davis, Joseph & Co., Fitzroy Works, 6, Kennington-park-road, S.E.

Digitized by Google

Meteorolog. Instrum. Makers—*continued.*

Hicks, James J., 8, Hatton-garden, E.C.
Horne & Thornthwaite, 416, Strand, W.C.
Hudson, Alf. & Co., 34, Hatton-garden, E.C.
Jenkins Bros., 19, Remington-st., City-road, N.
Murray & Heath, 69, Jermyn-st., S.W.
Pastorelli, Frank, & Co., 10, New Bond-st., W.
Pastorelli & Rapkin, 46, Hatton-garden, E.C.
Woodhead, Joseph, 63, Northampton-road, Clerkenwell, E.C.

Microphone Makers.

F.—Microphones (Fab. de).
G.—Microphon-Fabrikanten.

Apps, A., 433, Strand, W.C. *See index to advertisers.*

Mill Furnishers.

F.—
G.—

BOYCE, C. J. & CO., 32, St. Mary-axe, E.C.

Model Makers.

F.—Modèles (Fab. de).
G.—Modelle—Fabr.

Aylmer, Robert, 23, Cornwall-rd., Lambeth, S.E.
Bailey, George, 55, Gray-st., Blackfriars-rd., S.E.
Caplatzi, Antonio, 3, Chenies-st., Bedford-sq., W.C.
Chipperfield, R., 26A, Sekforde-st., Clerkenwell, E.C.
Crombie, John, 38, Rodney-rd., Walworth, S.E.
Debnam, Wm. & Co., 11A, Northampton-st., Clerkenwell, E.C.
De Nigri, Constantine, 68, Stamford-st., Blackfriars-road, S.E.
Hall, John Wm., 257, Kentish Town-road, N.W.
Jacobs, H., 29, Penrose-st., Walworth, S.E.
James, J., 40, Princes-st., Commercial-rd., S.E.
MAYFIELD, J. T., 41, Queen Victoria-st., E.C. Model and Experimental Work undertaken. Materials for Telephonic Experiments, &c.
Pearce, Jas., 13, Bedfordbury, W.C.
Phillips, B. J., 17, Zetland-st., Bromley, E.
Purnell, J., Atlas Works, Webber-st., New-cut, Lambeth, S.E.
Story, J. H., 37, Farringdon-st., E.C.
Wood, H. J., 185, Oxford-st., W.
Wrench, John & Son, 39, Gray's-inn-rd., W.C.

Muriatic Acid Manufacturers.

F.—Acide muriatique (Fab. de).
G.—Salzsäure—Fabr.

Allen, Fredk. & Sons, 164, Upper North-st., Poplar, E.
Beckles, S. H. & Co., 43, Fish-st.-hill, E.C.
Scott, Wm. T. & Co., Crown Chemical Works, Marsh-gate-lane, Stratford, E.

Nickel Manufacturers & Dealers.

F.—Nickel (Raffineurs et fab. de).
G.—Nickel-Läuterer und Händler.

Basse & Selve, Jeffrey's-sq., St. Mary-axe, E.C.
ELECTROLYTIC CO. (THE), Charlotte-street, Blackfriars, S.E. *See index to advertisers.*
Johnson, Matthey & Co., Hatton-garden, E.C.
LEVY, ARMAND, Electrical Sundriesman (Sulphate Anodes, &c.), 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; and 42, Rue de Ruysbroeck, Brussels.
Smith, John & Sons, 18, 23 & 24, St. John's-sq., E.C.
Watson, C. & Co., 29, Great St. Helen's, E.C.

Nitric & Nitrous Acid Manufacturers.

F.—Acide nitrique et nitreux (Fab. de).
G.—Salpetersäure—Fabr.

Beckles, S. H. & Co., 6, Lime-st.-square, E.C.
Bell, T. & Co., Vitriol Works, near Abbey Mills, Stratford, E.
Passe & Boome, Weston-st., Bow-common, E.
Wallace, H. & Co., 60, Mark-lane, E.C.

Oil Merchants.

F.—Huiles (marchands de).
G.—Oel-Händler.

Adams & Co., 40 & 41, Upper Thames-st., E.C.
Aldridge, Wm. V., 7, Islington-green, N.
Anglo-Italian Mineral Oils & Bitumen Company, 57, Moorgate-st., E.C.
Barclay & Son, 138, Regent-st., W.
Barclay, Son & Company, 11, Wigmore-st., W.
Barge & Goodwin, 215, Weston-st., S.E.
Barnes & Company, 137, Upper Thames-st., E.C.
Barnes, Henry, 216, Old Kent-road, S.E.
Bee & Co., Warton-road, Stratford, E.
Bootys' & Springer, 5, Jewry-st., Aldgate High-st., E.
Brocknell, Turner & Sons, 31 & 32, Haymarket, S.W.
Bromner, John A. & Co., 72, Mark-lane, E.C.
Briggs, H. R. & Co., 101, Leadenhall-st., E.C.
Bristow, Saml. C. & Co., 21, Great St. Helen's, E.C.
Browning, James & Henry & Co., 26 & 28, St. John-st., E.C.
Broxburn Oil Company, 21, St. Helen's-pl., E.C.
Bull, Wm., 447, West Strand, W.C.
Burrell & Co., 150, Leadenhall-st., E.C.
Butterfield & Co., 2, Barge-yard, Bucklersbury, E.C.
Calnan & Co., 159 & 161, Commercial-road, E.
Campbell, Donald & Co., 10, Cullum-st., E.C.
Canneline Oil Company, 62, Bishopsgate-st. Within, E.C.
Carless, Plaxton Saml., 40, Basinghall-st., E.C.
Carpenter, Wm. John & Co., 27, Cheapside, E.C.
Cassell, Smith & Co., 80, Fenchurch-st., E.C.
Chidley, R. Son & Co., 37, White Lion-st., Norton Folgate, E.

Digitized by Google

Oil Merchants—*continued.*

Copland & Co., 4, Mitre-st., Aldgate, E.
Cordrey, Edward, 203, Long-lane, S.E.
Cowan & Co., 28 & 29, London Wall, E.C.
Craig & Rose, 75, Southwark-st., S.E.
Crane, P. Moir & Co., 131, Fenchurch-st., E.C.
Crease, J. & Son, 29 & 30, Cow-cross-st., E.C.
Cumming, Alex., 1, Lombard-court, E.C.
DALE, R. F. & Co., Bear-lane, Southwark, S.E. *See index to advertisers.*
Dee Oil Company, 38, Leadenhall-st., E.C.
Deleuse, Ernest Joseph, 16, Water-lane, Great Tower-st., E.C.
Dentith, Joseph Mayer, 24, Crosby-hall-chambers, Bishopsgate-st., Within, E.C.
Di Luggo, Dennis & Co., 45, Eastcheap, E.C.
Dick, Wm. Bruce & Co., 101, Leadenhall-st., E.C.
Domeir & Co., 3, Botolph-lane, E.C.
DUNCAN, WATSON & Co., Dashwood-house, New Broad-st., E.C. *See index to advertisers.*
ETHERINGTON, JOHN, 39A, King William-st., E.C. *See index to advertisers.*
Feaver, John, 161 & 163, Bermondsey-st., S.E.
Fleming, A. B. & Co., 15, Whitefriars-st., E.C.
Frigout, Hy., 19, Westmoreland-st., Marylebone, W.
Gardners, 453 & 454, Strand, W.C.
Garford, John & Sons, Crosby-square, E.C.
Gibbs, Saml. & Co., 32, Great St. Helen's, E.C.
Globe Oil Company, 63, Queen Victoria-st., E.C.
Greaves, Jas. Richard, 60, New Oxford-st., W.C.
Greenhill, Geo. & Co., 7, Bury-st., St. James', S.W.
Griffin, T., 23, Crown-st., Soho, W.C.
Grimes, Thos. Richd., 83, New Bond-st., W.
Hancock & Rixon, 47, Great Marlborough-st., Poland-st., W.
Hedley, John & Co., 39, Upper Thames-st., E.C.
Hicks Bros., 1, Maiden-lane, Queen-st., Cheapside, E.C.
Hilton, Rider & Co., 143, Great Suffolk-st., S.E.
Hodson, Harry & Co., 94, Upper Thames-st., E.C.
Holdsworth, E. & H., 26, Worship-st., E.C.
Houghton, Jas. & Son, 27, Bartholomew-close, E.C.
Howe, Wm. & Co., 6, Great Winchester-st., E.C.
Iles, Benjamin & Co., High-st., Stratford, E.
Johnson & Cole, Park-st., Riley-st., Bermondsey, S.E.
Jones, Wm. & Thos. & Co., 98, Southwark-st., S.E.
Kincaid & Co., 4, Mitre-st., Aldgate, E.
King & Browne, 93, Wigmore-st., W.
Kitchen, Edgar, 13, Leonard-st., Finsbury, E.C.
Kitchen, Wm., 35, Phœnix-st., Somers-town, N.W.
Kühne, Hermann, 34, Great St. Helen's, E.C.
Langton, Fras., 143 to 145, Upper Whitecross-st., E.C.
Langton & Bicknells, 89, Newington Butts, S.E.
Lisner, Hooper & Co., 7, Mincing-lane, E.C.
Livett, F. & Son, 22, Borough High-st., S.E.
Macdona & Co., Stainsby-road, Limehouse, E.
Manger, Wm. & Co., 126, Piccadilly, W.
Medlicott, Alf., 24, Bride-st., Liverpool-road, N.

Oil Merchants—*continued.*

Middleton Bros., 10 & 11, St. George-st., E.
Miles, Wm. Chas., 21 to 24, Shoreditch High-st., E.
Miller & Sons, 178 & 179, Piccadilly, W.
Morris, Fredk., Plough-bridge, Rotherhithe, S.E.
Morton, John Thos., 107 to 109, Leadenhall-st., E.C.
MORGAN & SON, 217, Blackfriars-road, S.E. Lubricating Oil specially prepared for Gas Engines. *See index to advertisers.*
Neighbour, Geo. & Sons, 127, High Holborn, W.C.
Newton, J. W. & Co., 72, Mark Lane, E.C.
Oil & Stearine Co., 6, Arthur-st., East, E.C.
Page, J. & Son, 159 & 160, Bermondsey-st., S.E.
Parker, Edward & Co., 33, Seething-lane, E.C.
Parvin, Rich. John, 303, Euston-road, N.W.
Pilcher, J. G., Morgan's-lane, Tooley-st., S.E.
Pinchin, Johnson & Co., 83 to 87, Cable-st., E.
Potter, Thos. Sidney, 3, Bishopsgate-st. Within, E.C.
Poupard, Chas. Geo., 271, Romford-road, Stratford, E.
Price, C. & Co., 12 & 13, Upper Thames-st., E.C.
Pritchard, Offor & Co., 24, Crutchedfriars, E.C.
Ragosine, V. I. & Co., 22, Leadenhall-st., E.C.
Reyre, Albert & Co., 7, Queen-square, Eldon-st., Finsbury, E.C.
Richard, John, Little Tower-st., E.C.
ROSE, SIR W. A., & CO., 66, Upper Thames-st., E.C.
Rollins, John G. & Co., Old Swan-wharf, Upper Thames-st., E.C.
Safety Oil Company, Ltd., 17, College-hill, E.C.
Sander, Franz, 32, Lawrence-la., Cheapside, E.C.
Schoetensack, Hermann, 102 & 103, Ethelburga-house, Bishopsgate-st. Within, E.C.
Simpson, Wm. & Co., 1, Fenchurch-avenue, Lime-st., E.C.
Sorel Frères, 6, Martin's-lane, E.C.
Sutton & Nailor, 23, Whitechapel-road, E.
Skitt, John & Co., 93, Summer-st., Southwark, S.E.
Skudder, George & Co., Thorburn-square, S.E.
Smithers, Wm. Flower, 30, Mark-lane, E.C.
Standard Lubricating Oils Company (The), 1, Drapers'-gardens, E.C.
Stevens & Co., 322 & 325, Old-st., St. Luke's, E.C.
Stone, Edward, 46, Fish-st.-hill, E.C.
Taylor, Arthur & Co., 32 & 34, Commercial-st., E.
Taylor, Wm., jun., & Co., Garford's-wharf, Limehouse, E.
Thomson & Son, 21, London-st., E.C.
Tolhurst, John & Sons, 60 to 63, Tooley-st., S.E.
Trigg, Jas. & Son, Sandy's-row, Bishopsgate, E.
Tucker, F. & Co., 117, Kensington High-st., W.
Tudors, Mash & Co., 17, College-st., E.C.
Turner, Blewitt & Co., Orchard-place, Blackwall, E.
Uphall Oil Company, 1, Bury-st., St. Mary Axe, E.C.
VANNER & PREST, 148, Ormside-st., Old Kent-road, S.E. Makers of Molliscorium Harness Composition, Black Oil, Brass Paste.

Digitized by Google

Oil Merchants—*continued.*

Walton, Turner & Walton, 15, Lower Whitecross-st., E.C.
Western of Canada Oil Company, Pinners'-hall, Old Broad-st., E.C.
Williams & Bach, 92, New Bond-st., W.
Wood, Thos. Geo. Wm., 70, Bishopsgate-st. Within, E.C.
WOODHOUSE & RAWSON, 11, Queen Victoria-st., E.C. Sole agents for Ragosine Dynamo Machine Oil (special oil for Gas Engines). *See index to advertisers.*
Wright, Rt. Alfd. & Co., 178, High-st., Homerton, E.
Young, B. & Co., Amelia-row, Spa-road, S.E.
Young, E. G. & Co., Blackhorse-road, Deptford, S.E.
Young's Paraffin Light and Mineral Oil Company, 70, Bishopsgate-st. Within, E.C.

Oil Refiners.

F.—Huiles (Raffineurs d').
G.—Oel-Läuterer.

Ariston Oil Co., 15, Kirby-st., Hatton-garden, E.C.
Atkinson, Geo. & Co., 66, Aldersgate-st., E.C.
Barangah Oil Refinery Co., 4, Queen Victoria-st., E.C.
Blacklock & Macarthur, 27, Leadenhall-st., E.C.
Briggs, H. R. & Co., 101, Leadenhall-st., E.C.
Bryce, Andrew J., 23, St. Mary Axe, E.C.
Burrell, A. E., 3, Jewry-st., Aldgate, E.
Burrell & Co., 150, Leadenhall-st., E.C.
Clark, Robt. Ingram & Co., West Ham Abbey, Stratford, E.
Crane, P. Moir & Co., 131, Fenchurch-st., E.C.
Denton & Jutsum, 9, New Broad-st., E.C.
Dick, Wm. Bruce & Co., 101, Leadenhall-st., E.C.
DUNCAN, WATSON & CO., Dashwood House, New Broad-st., E.C. *See index to advertisers.*
Ellis, J. & Co., 17, Cross-st., Blackfriars-rd., S.E.
Evans, Wm. & Co., 140, Liverpool-road, N.
Ferris & Williams, 39, Gt. Sutton-st., Clerkenwell, E.C.
Field, J. C. & Co., 58, Bermondsey New-road, S.E.
Fleming, A. B. & Co., 15, Whitefriars-st., Fleet-st., E.C.
Gibbs, David & Wm., Hanover Court, Milton-st., E.C.
Gross & Sherwood, 2, Little Lant-st., Boro', S.E.
Hirsch, J. F., Copenhagen-place, Limehouse, E.
Hubbuck & Son, 24, Lime-st., E.C.
Kraul, Augustus F. G., London Oil Works, Hackney Wick, E.
Leonard & Ellis, 39a, King William-st., E.C.
Livett, F. & Son, 22, Borough High-st., S.E.
Macbean, Hugh, & Co., 7, Mincing-lane, E.C.
Macdona & Co., Stainsby-rd,, East India Dock, E.
Neighbour, Geo. & Sons, 127, High Holborn, W.C.

Oil Refiners—*continued.*

Newton, J. & Co., Manor Works, Rotherhithe New-road, S.E.
Niesigh & Soule, Victoria Oil Mills, Rotherhithe-st., S.E.
Oil Seed Crushing Co., 8, Catherine-court, Tower-hill, E.C.
Palmer & Co., Victoria Oil Works, Stratford, E.
Petty & Co., 16 & 18, Dock-st., London Docks, E.
Pinchin, Johnson & Co., 83, 85 & 87, Cable-st., E.
Pittam, John & Co., 82, Augusta-st., East India-road, E.
Price, C. & Co., 12 & 13, Upper Thames-st., E.C.
Ragosine, V. J. & Co., 22, Leadenhall-st., E.C.
Schleicher, Otto, Warton-road, Stratford, E.
Sevin, Chas., Morris-road, Crisp-st., Limehouse Cut, E.
Smith, Horace & Co., 178, Liverpool-road, N.
Stewart Bros. & Spencer, 4, Queen Victoria-st., E.C.
Surrey Oil Co., Nye's Wharf, Peckham Park-road, S.E.
Taylor, Wm. Junr. & Co., 23, Billiter-st., E.C.
Thomas, C. E., 8 & 9, Barking-alley, E.C.
Tringham, Avila, 161, Hanbury-st., Mile-end, E.

Opticians.

F.—Opticiens.
G.—Optiker.

Anderson, Hy., Alma-grove, Copenhagen-st., N.
Apps, A., 433, Strand, W.C. *See index to advertisers.*
Archbutt, John & Wm. E., 201, Westminster-bridge-road, S.E.
Archer, Reuben, 17, Myddelton-st., E.C.
Arnold, Alf. Hy., 191A, Gray's-inn-road, W.C.
Aston & Mander, 25, Old Compton-st., W.
Baker, Chas., 244, High Holborn, W.C.
Barker & Son, 12, Clerkenwell-road, E.C.
Bateman, John, 104, Strand, W.C.
Beck, R. & J., 68, Cornhill, E.C.
Bendon, Geo. & Co., 36 & 37, Ely-place, E.C.
Bennett, Alex., 11½, Union-ct., Old Broad-st., E.C.
Bottomley, Robt. Forster, 11, Billiter-st., E.C.
Bracher, Henry, John-st., Cannon-st.-road, E.
Braham, Octavius, 3, Sekforde-st., St. John's-st.-road, E.C.
Brown, Wm. Thos., 12, Benjamin-st., Cowcross-st., E.C.
Browning, J., 63, Strand, W.C.
Burr, Chas., 195, Devon's-road, Bromley, E.
Callaghan, Wm. & Co., 23A, New Bond-st., W.
Campbell, Joseph M'Gregor, 30 & 32, King's-road, Chelsea, S.W.
Caplatzi, A., 3, Chenies-st., Bedford-sq., W.C.
Carpenter & Westley, 24, Regent-st., S.W.
Cary, Wm. (Gould & Porter), 181, Strand, W.C.
Catmur, Thos., 66, Whitechapel High-st., E.
Clarke, Andrew, 46, Rathbone-place, W., and 6, Catherine-st., Strand, W.C.
Collins, Chas., 157c, Great Portland-st., W.
Conway, Joseph, 65, Rotherfield-st., Islington, N.

Digitized by Google

Opticians—*continued.*

Cooper, Geo. Fredk., 24, John-st., Spa-fields, Exmouth-st., W.C.
Coxeter, Jas. & Son, 23 & 24, Grafton-st., E.
Crampton, Thos. & Co., 251, High Holborn, W.C.
Crouch, Henry, 66, Barbican, E.C.
Culver, Geo., 99 & 100, White Lion-st., N.
Dale, H. & E. J., 26, Ludgate-hill, E.C.
Dallmeyer, John Hy., 19, Bloomsbury-st., W.C.
Davis, Joseph & Co., 6, Kennington-pk.-rd., S.E.
Dixey, Wm. & Son, 552, Oxford-st., W.
Dixey, Chas. W. & Son, 3, New Bond-st., W.
Dollond & Co., 1, Ludgate-hill, E.C.
Doublet, Thos. & Hy., 11, Moorgate-st., E.C.
Ellicott, Chas., 267, Mile-end-road, E.
Elliott Bros., 449, Strand, W.C.
Follenfant, J. J., 6, Fieldgate-st., Whitechpl., E.
Fournet, A., 31, Ludgate-hill, E.C. Inventor of an instrument for measuring the sight accurately; Manufacturer of Binocular Marine Barometers and Spectacles. (Illustrated list post free.)
Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C. & Lawford-road, N.W.
Garton, Fredk., 191A, Gray's-inn-road, W.C.
Gebhardt, Rottmann & Co., 24, Laurence-lane, E.C.
Gibbins, Geo. Wm., 140, Liverpool-road, N.
Gillett, Wm., 6, Bell-yard, Temple-bar, W.C.
Graham, John Hamilton, & Co., 4, Northampton-square, St. John-st.-road, E.C.
Gray, Chas., 11, Crooked-lane, Cannon-st., E.C.
Gray, Jas. Hy., 158, Ebury-st., S.W.
Gregory, Wm., 51, Strand, W.C.
Grünfeld, Maurice Moritz, 62, St. John's-sq., E.C.
Hall, John Wm., 257, Kentish Town-rd., N.W.
Hancock, John, 61, City-road, Finsbury, E.C.
Harris, Henry, 32, Gracechurch-st., E.C.
Harris, Thomas & Son, 52, Gt. Russell-st., W.C.
Harvey & Peak (successors to W. Ladd & Co.), Beak-st., Regent-st., W.
Hawes, Alfred, 79, Leadenhall-st., E.C.
Hemsley, Thos. & Son, 4, King-st., Tower-hill, E.C.
Herbert (W.) & Godfrey, 7, Peahen-court, Bishopsgate-st., E.C.
Hicks, James J., 8, Hatton-garden, E.C.
Hilger, Adam, 192, Tottenham-court-road, W.
Holmes, Samuel, 42, Dean-st., Soho, W.
Horner & Co., 70, Hatton-garden, E.C.
How, J. & Co., 73, Farringdon-st., E.C.
Howes & Isaac, 85, Hatton-garden, E.C.
Hudson, Alfred & Co., 34, Hatton-garden, E.C.
Hudson & Son, Stockwell-st., Greenwich, S.E.
Hughes, Hy. & Son, 59, Fenchurch-st., E.C.
Hughes, Wm. Chas., 151, Hoxton-st., N.
Isaac, Druiff & Co., 63, Hatton-garden, E.C.
Jacquemin Bros., 42, Hatton-garden, E.C.
Johnson, Wm., 188, Tottenham-court-road, W.
Jones, Wm., 60, St. John-st.-road, E.C.
Jones, Wm., 172, Goswell-road, E.C.
Keyzor, Ben. & Co., 15, Charterhouse-bdgs., E.C.
Laurance, Hy., 44, Hatton-garden, E.C.
Lawrence, Nathan, 4, Arundel-sq., Barnsbury, N.

Opticians—*continued.*

Lawley, Walter, 78, Farringdon-st., E.C.
Lejeune & Perken, 24, Hatton-garden, E.C.
Levy, Joseph Solomon & Co., 56, Houndsditch, E.
Lewis, Wm. Thos., 132, Lorrimore-road, S.E.
London Stereoscopic & Photographic Co., 54, Cheapside, E.C.
Lucas, Joseph, 59, King's-road, Chelsea, S.W.
Mackinney, Fredk. Wm., 156, High-st., Nottinghill, W.
Macrae, Henry, 29, Royal Exchange, E.C.
Marratt & Ellis, 63, King William-st., E.C.
Medland, John B., 12, Borough High-st., S.E.
Messer, J. J. & Co., 78 & 80, Christian-st., Commercial-road, E.
Millard, John, 322, Upper-st., Islington, N.
Millard, Thos. & Son, 245, Oxford-st., W.
Moulder, Jas. R., 44, Wimbourne-st., New North-road, N.
Murray & Heath, 69, Jermyn-st., S.W.
Negretti & Zambra, Holborn-viaduct, E.C.
Newbold, Alfred Edwin, 149, Goswell-road, E.C.
Newton, F. & Co., 3, Fleet-st., E.C.
Norman, John Thos., 178, City-road, E.C.
Norris, Geo. Alfred, 13, New Charles-st., City-road, E.C.
Oddy, Rich. Jas., 66, Islington High-st., N.
Offenbacher, S., 199A, Bishopsgate-st. Within, E.C.
Omer, John, 99, Minories, E.
Orchard, John, 100, Kensington High-st., W.
Orme, Hy. Thos. & Son, 139, East-rd., N.
Peacock, Chas. Gilbert, 1, Bishopsgate-st. Without, E.C.
Pearce, Henry, 52, Park-st., Camden Town, N.W.
Pearce, Stanley, 161, Wardour-st., Soho, W.
Phelps, Alf. J., 176, St. John's-road, Hoxton, N.
Phelps, Fredk., 83, St. John-st.-road, E.C.
Pickard & Curry, 195, Great Portland-st., W.
Poole, Saml., 144, Fleet-st., E.C.
Potter, John Dennett, 31, Poultry, E.C.
Powell & Lealand, 170, Euston-road, N.W.
Pratt, Joseph, 43, Oxford-st., W.
Preist & Co., 514, Oxford-st., W.
Reynolds & Son, 32, Crutched-friars, E.C.
Richard & Co., 24, Cannon-st., E.C.
Roberts, Harry, 6, Station-buildings, South Kensington-station, S.W.
Robinson, Edw. Hy. & Co., 53, Bishopsgate-st. Within, E.C.
Robbins, John, 165, Aldersgate-st., E.C.
Ross & Co., 112, New Bond-st., W.
Rowley, John & Son, 60, Edgware-rd., W.
Rowley, Wm. Nelson & Co., 6, Mount-pleasant, Gray's-inn-road, W.C.
Salmon, John, 24, Seymour-st., N.W.
Simmons Bros., 26, Finsbury-pavement, E.C.
Slape, Harraway, 61, High-st., Camden Town, N.W.
Société des Lunetiers, 56, Hatton-garden, E.C.
Solomon, Mark, 76, Theobald's-road, W.C.
Somalvico, J. & Co., 16, Charles-st., Hatton-garden, E.C.
Spencer, Wm. Jas., 163, Gray's-inn-road, W.C.
Spiller, Geo., 3, Wigmore-st., Cavendish-sq., W.

Digitized by Google

Opticians—*continued.*

STANLEY, W. F., 4, Great Turnstile, Holborn, W.C.
Statham, W. E., 111, Strand, W.C. *See index to advertisers.*
Steward, J. H., 406, Strand, W.C.
Strachan, John, 7, Rocliffe-st., Graham-st., City-road, N.
Sutton, Chas., 179, Wardour-st., W.
Sutton, Chas. T., 108, Holloway-road, N.
Sutton, Geo. & Son, 209, Westminster-bridge-road, S.E.
Sutton, Henry, 329, Kennington-road, S.E.
Swift & Son, 81, Tottenham-court-road, W.
Theobald, John & Co., 20, Church-st., Kensington, W.
Thomas, Richard Wheeler, 10, Pall Mall, S.W.
Topping, Amos, 28, Charlotte-st., Caledonian-rd., N.
Watson, Thos. Wm., 4, Pall-mall, S.W.
Watson, Wm. & Sons, 313, High Holborn, W.C.
Webster Bros., 4, Dorchester-rd., Bayswater, W.
Weeden, Wm., 33, Camden-passage, Islington, N.
West, Francis Linsell, 31, Cockspur-st., Charing-cross, S.W.
West, Henry, 73, Upper Kennington-lane, S.E.
West, John Geo. & Co., 92 & 93, Fleet-st., E.C.
Westley, Fredk., 27, Old Bond-st., W.
Wheeler, Edmund, 48, Tollington-road, Holloway, N.
Whitehouse, John, 8, Coventry-st., Haymkt., W.
Whitehouse, Joseph, 37, Warwick-st., Belgrave-road, Pimlico, S.W.
Wiggins, Fredk. & Sons, 10, Tower-hill, E.
Wilson, Robt., 15, Merchant-st., Bow-road, E.
Wise, Edward, 554, Old Ford-road, Bow, E.
Wood, Edward George, 74, Cheapside, E.C.
Wood, Henry Joseph, 185, Oxford-st., W.
Woolfson, Theodore Green De, 3, Holles-st., Cavendish-square, W.
Wrench, John & Son, 39, Gray's-inn-road, W.C.

Parchment Makers and Dealers.

F.—Parchemin (Fab. et. merchands de).
G.—Pergament-Fabriken und Händler.

Baden Vegetable Parchment Manufacturing Co., 9, Bond-court, Walbrook, E.C.
Band, James, & Sons, 21, York-st., Walworth, S.E.
Beach, John, & Sons, 41-45, Willow-walk, S.E.
Becker, Ernest, 30, Little Trinity-lane, E.C.
Chipperfield & Messent, 8, Newgate-st., E.C.
Cooper & Co., 5, 6 & 7, Shoe-lane, E.C.
Crabb & Co., 81, Knightrider-st., E.C.
Crook, George, 78, Newgate-st., E.C.
De Berenger & Co., 72, Finsbury-pavement, E.C.
Erhardt & Co., 9, Bond-court, Walbrook, E.C.
Garnar, Chas. & Edward, 96, Rockingham-st., Newington-causeway, S.E.
Gibbs, Geo., & Son, 29, St. Bride-st., E.C.
Hatt, W., 2, King Edward-st., Newgate-st., E.C.
Hooper & Son, 69, Ludgate-hill, E.C.

Parchment Makers & Dealers—*continued.*

Hymans, H., 17, Redman's-rd., Stepney-green, E.
Jagenberg Bros., 2, Lime-st.-square, E.C.
Lever, G. & W., Albany-row, Neate-st., S.E.
Loosley, Albert, 15, Boyson-rd., Walworth, S.E.
Loosley, Thos., Marlborough-road, Old Kent-road, S.E.
Moores, Wm., 271, Rotherhithe New-road, S.E.
Nicol, Robt., 2, Bell's-buildings, Salisbury-square, E.C.
Bayley, Thos. & Co., Limited, 8, Snow-hill, E.C.
Sabel, Max, 2, Coleman-st.-buildings, E.C.
Smith & Co., 4, Wine Office-court, E.C.
Starkey, R. W., & Son, 27, New Bridge-st., E.C.
Warren, Henry, 97, Russell-st., Bermondsey, S.E.

Patent Agency.

F.—Brevets (Bureau des.)
G.—Patent-Bureaux.

ELECTRICAL. — BROWNE, NEWNHAM, 91, Queen-st., Cheapside, E.C. Speciality for Electrical Patents.

Patent Agents.

F.—Brevets (Agents de).
G.—Patent-Agenten.

Alexander, P. A. Fel. Inst., 36, Southampton-buildings, Chancery-lane, W.C.
Browne & Co., 5, Southampton-buildings, Chancery-lane, W.C.
Cook, W., C.E., 43, Southampton-buildings, W.C.
Downing, Geo., & Co., 8, Quality-court, Chancery-lane, W.C.
EDGAR, EDMONDS & CO., 203, Strand, W.C.
Harris & Mills, 23, Southampton-buildings, W.C.
Newton's Office for Patents, 66, Chancery-lane, W.C.
PHILLIPS & LEIGH, 7, Southampton-bldgs., W.C.
ROGERS, F. M., 21, Finsbury-pavement, E.C. "Speciality" electrical work. *See index to advertisers.*
Spence, William, 8, Quality-ct., Chancery-lane, W.C.
THOMPSON & BOULT, 323, High Holborn, W.C. *See index to advertisers.*
Tongue & Birkbeck, 34, Southampton-buildings, W.C.
Wrigley, T., C.E., 75, Chancery-lane, W.C.

Patent & Design Registration Agents.

F.—Brevets et Marques de fabrique (Agents de)
G.—Agenten zum Registriren der Patente, &c.

Abel & Imray, 28, Southampton-buildings, W.C.
BECK, W. H., 139, Cannon-st., E.C.
BERLY, J. A., C.E., A.S.T.E., &c., 16, New Bridge-st., E.C. Engineering & Electrical. *See index to advertisers.*

Digitized by Google

Patent & Design Regis. Agents—*continued.*

BROWNE, NEWNHAM, 91, Queen-st., Cheapside, E.C., gives special attention to ELECTRICAL INVENTIONS. Agencies in most FOREIGN COUNTRIES.
Clark, A. M. & W., 53, Chancery-lane, W.C.
Clarke, A. & W., (Agents for Munn & Co.), 53, Chancery-lane, W.C.
Day, Davis & Hunt, 321, High Holborn, W.C. Trade Marks. *See index to advertisers.*
GARDNER, H., 166, Fleet-st., E.C.
Hall, Julius, 90, Chancery-lane, E.C.
Haseltine, Lake & Co., 8, Southampton-buildings., W.C.
Morgan, Brown, W., 38, Southampton-buildings, W.C.
Phillips, J. F., 7, Southampton-buildings, W.C.
Popplewell, Colton & Co. (late Des Voeux & Colton), 32, Southampton-buildings, W.C., & Albert-st., Derby. *See index to advertisers.*
ROBERTSON, BROOMAN & CO., 166, Fleet-st., E.C.
UNIVERSAL (THE) INVENTORS AND PATENTEES FINANCIAL CO., LIMITED, 30, FINSBURY-PAVEMENT, E.C. *See index to advertisers.*
Wise, Wm. Lloyd, 46, Lincoln's-inn-fields, W.C.

PATENT OFFICE.

Commissioners of Patents for Inventions Office, opened daily from ten to four, 25, Southampton-buildings, Chancery-lane, W.C.

Phosphor-Bronze and Silico Bronze Manufacturers.

F.—Phosphore bronze (Fab de).
G.—Phosphor-Bronze—Fabr.

Phosphor-Bronze Co., Limited, 87, Sumner-st., Southwark, S.E. *See index to advertisers.*

Photometer Makers.

F.—Photometre (Fab de.)
G.—Photometer—Fabr.

APPS, A., 433, Strand, W.C. *See index to advertisers.*
Elliott Bros., 449, Strand, W.C.
Sugg, W. & Co. (Limited), Vincent Works, Westminster, W. Makers of all kinds of Photometrical apparatus.

Pipe (Iron & Brass) Makers.

F.—Tuyaux (Fab. de).
G.—Röhren (Eisen und Messing.)

Abbot, John & Co., 106, Cannon-st., E.C.
Alma Tube Works, 145, Queen Victoria-st., E.C.
Ashton & Green, Limited, 11, 12, 14, 15, Bury-st., St. Mary Axe, E.C.
Bailey, Pegg & Co., 81, Bankside, S.E.

Pipe (Iron & Brass) Makers—*continued.*

Beck & Co., Limited, 130, Great Suffolk-st., Southwark, S.E.
Brotherton, John, 3, Jeffrey's-sq., E.C.
Butterley & Co., 110, Cannon-st., E.C.
Camelon Iron Co., 236, Upper Thames-st., E.C.
Clay Cross Co., 130, Great Suffolk-st., S.E.
Cochrane, Grove & Co., 11, Queen Anne's Gate, Westminster, S.W.
Davis, Fredk., 83 & 81, Palace-chambers, Bridge-st., S.W.
Edington, T. & Sons, 63, Old Broad-st., E.C.
Everitt (Allen) & Sons, 118, Cannon-st., E.C.
General Iron Foundry Co., Limited, Broken Wharf, 43, Upper Thames-st., E.C.
Laidlaw, R. & Son, 6, Little Bush-lane, E.C.
Lane & Nesham, Old Shot Tower Works, Commercial-rd., Lambeth, S.E.
Lawrie, James & Co., 63, Old Broad-st., E.C.
LLOYD & LLOYD, 90, Cannon-st., E.C.
Macfarlane, Strang & Co., 86, Cannon-st., E.C.
Oakes, Jas. & Co., 21 & 22, Wharf-rd., City-road, N.
Roberts, Jhn. & Saml., 3, Queen-st.-place, E.C.
Russell, J. & Co., Limited, 145, Queen Victoria-st., E.C.
Russell, J. & Sons, Limited, 108, Southwark-st., S.E.
SPENCER, JAMES E. & SAMUEL, 3, Queen-st.-place, E.C.
Stanton Iron Works Co., Limited, 80 & 81, Palace-chambers, Bridge-st., S.W.
Stewart, Andrew & Jas., 235, Upper Thames-st., E.C.
Stewart, D. Y. & Co., 3, Victoria-st., Westminster Abbey, S.W.
Taunton (R. A.) & Hayward, 117, Palmerston-buildings, E.C.
Tees Side Iron and Engine Works Company, Limited, 97, Cannon-st., E.C.
Thames Bank Iron Company (The), Upper Ground-st., S.E.
Williams, Alfred, 64, Bankside, S.E.

Platers.

F.—Galvanoplastes.
G.—Galvanische Versilberer.

Abercombie & Son, 30, Whitfield-st., W.
Adams & Son, 57, Haymarket, S.W.
Arnold, Geo. W., 39, Northampton-road, Clerkenwell, E.C.
Arrowsmith, A., 5, Sheffield-st., Lincoln's-inn-fields, W.C.
ASHDOWN, T., 47, Berwick-st., Soho, W.
Baker, Chas., 14, Wynyatt-st., Goswell-rd., E.C.
Batt, G., 77, Rahere-st., Goswell-road, E.C.
Bayfield, W. H., 51, Great Sutton-st, E.C.
Benetfink & Co., 107, Cheapside, E.C.
Blake, A., 18, Albermarle-st., Clerkenwell, E.C.
Bocock, T. W., & Co., 39, Hatton-garden, E.C.
Bradbury, T., & Son, 26, Bartlett's-bldgs., E.C.
Briddon Bros., 17, Ely-place, Holborn, E.C.

Digitized by Google

Platers—*continued.*

Brown, J. W., 30, Gloucester-st., Clerkenwell, E.C.
Brown, T., 7, Spencer-st., E.C.
BUCK, C., 20, St. John's-lane, E.C.
Butler, S., 8, Hewett-st., Curtain-road, E.C.
Caton, Mrs. E. A., 31, Ludgate-hill, E.C.
Carloss, W. I., 66, Hatton-garden, E.C.
Carloss, S., 23, St. James's-walk, Clerkenwell, E.C.
Carrington & Co., 130, Regent-st., W.
Chalkley, H. T., 9, Princes-st., Clerkenwell, E.C.
Chellingsworth, J. F., 4, Nettleton-court, Nicholl-square, E.C.
CLARKE, WILLIAM, 36, Clerkenwell-rd., E.C.
CLAYDON, J., & Co., 4, Angel-lane, Stratford, E.
Clements, Handley & Co., 19, St. John's-sq., E.C.
Cole, T., 102, St. John's-st., E.C.
Collingridge & Co., 60, Clerkenwell-road, E.C.
Crouch, H., 10, Macclesfield-st., Soho, W.
Daniel, F. A., 33, Percy-st., W.
Deykin & Sons, 97, Cheapside, E.C.
Dobson, H., 27, King-st., Soho, W.
Ducher, F., 21, Lisle-st., Leicester-square, W.
Dyer Bros., 12, Waterloo-place, Clerkenwell, E.C.
Eabourn & Honour, 84, Hatton-garden, E.C.
Ebner, T., 182, Seymour-st., Euston-sq., N.W.
Edwards & Son, 34, Great Sutton-st., E.C.
ELECTROLYTIC CO. (THE), Charlotte-st., Blackfriars, S.E. *See index to advertisers.*
Fowler, J. W. & Son, 2, Kennington-park-road, S.E.
Garritt, J. J., 18, Clerkenwell-road, E.C.
Gass & Co., 166, Regent-st., W.
Godwin, G. A., 304, High Holborn, W.C.
Goodfellow & Sons, 29, Hatton-garden, E.C.
Gorer, S., 89, Edgeware-road, W.
Grimme, F., 29½, Percival-st., E.C.
Grinsell, J., & Sons, 13, Charterhouse-st., E.C.
Thomas Hall & Co., 22, Bouverie-st., Fleet-st., E.C.
Hodd, R., & Son, 30, Hatton-garden, E.C.
Hope, H., 26, St. John's-lane, Clerkenwell, E.C.
Hukin & Heath, 19, Charterhouse-st., E.C.
Humphries, R., 52, Seymour-place, Bryanston-square, W.
Jarrett, John, 2, Wenlock-road, City-road, N.
King, J. W., 15, St. John's-square, E.C.
Leddell, H., & Co., 19 & 20, Cow-cross-st., E.C.
Leefe, F. E., 289, Goswell-road, E.C.
Lemoine, J., 17, Great Sutton-st., E.C.
Leslie, S., 61, Upper-st., Islington, N.
Lowenstark, M., 32, Aldgate, E.
Mappin Bros., 67, King William-st., London-bridge, E.C.
Marchant, W., 3, St. James's-st., St. James'-walk, Clerkenwell, E.C.
Marr, W., & Son, 28, Red Lion-st., Clerkenwell, E.C.
MARTIN, HALL & CO., LIMITED, 27, Bouverie-st., Fleet-st, E.C.
Napper, Sidney, 9, Fenchurch-st., E.C.
Nickel Plating Co. (The), 13, Greek-st., Soho, W.
Noone, A. 55, St. John-st.-road, E.C.
Nye, G., 139, Carlisle-st., N.W.
Panklibanon Furnishing Ironmongery Co., Limited, 56, Baker-st., W.

Platers—*continued.*

Peacock, J., 38 to 46, New Oxford-st., W.C.
Pickering, T., 28, Cyrus-st., Clerkenwell, E.C.
Pidgeon, W., 5, Jerusalem-pas., Clerkenwell, E.C.
Pride, J., 17, Union-st., Oxford-st., W.
Prime, Thomas, & Son, 5, Charterhouse-st., E.C.
Pringle, R., & Co., 42, Clerkenwell-road., E.C.
Richardson, R., 28, Holborn-viaduct, E.C.
Sandars, A., & Co., 242, Oxford-st., W.
Sénécal, L., 261, Brompton-road, S.W.
Sheriff, J., 27, Gloucester-st., Clerkenwell, E.C.
Smith, T., & Co., 10, Percival-st., Clknwell., E.C.
Smith, J. W., 51, Percival-st., Clerkenwell, E.C.
Spiller, R., 166, Upper-st., Islington, N.
Stephens, R., 18, George-yard, Old-st., E.C.
Sturtevant, T. T., 19A, Farringdon-road, E.C.
Swift, T., 6, Percival-st., Clerkenwell, E.C.
Taberer, J., 79, Dean-st., Soho, W.
Tatnell, H., 120, Salisbury-square, Fleet-st., E.C.
Thomas, W., 36, Spencer-st., Clerkenwell, E.C.
Tysal, E., 24, Poland-st., Oxford-st., W.
Wales & McCullock, 22, Ludgate-hill, E.C.
Walker & Hall, 45, Holborn-viaduct, E.C.
Watson, W., 59, Noble-st., Goswell-road, E.C.
Watt & Co., 36, Clerkenwell-green, E.C.
West, M., & Co., 3, Ludgate-hill, E.C.
Withrod, Son & Co., 55, Berwick-st., Soho, W.
Wilkinson, T., & Sons, 16, Holborn-viaduct, E.C.
Wodicka, J., 2, Charles-st., Curtain-road, E.C.

Platina Smiths.

F.—
G.—Platina-Schmiede.

Benham & Froud, 40, 41 & 42, Chandos-st., Strand, W.C.
Johnson, J., & Sons, 23, Cross-st., Finsbury, E.C.
Johnson, Matthey & Co., Hatton-garden, E.C.

Platinum Refiners.

F.—Platine (Raffineurs de).
G.—Platinum-Läuterer.

DESMOUTIS, H. & F., LE BRUN & CO., 8, Southampton-st., Strand, W.C.
Johnson, J., & Sons, 23, Cross-st., Finsbury, E.C.
Johnson, Matthey & Co., Hatton-garden, E.C.

Platinum Retort and Boiler Manufacturers.

F.—Platine (Fab. de).
G.—Platina-Kolben und Kessel.

Benham & Froud, 40-42, Chandos-st., Strand, W.C.
Desmoutis, Quennessen & Le Brun, 8, Southampton-st., Strand, W.C.
Johnson, J., & Sons, 23, Cross-st., Finsbury, E.C.
Johnson, Matthey & Co., Hatton-garden, E.C.

Digitized by Google

Porous Cell Manufacturers.

F.—Vases poreux (Fab. de).
G.—Poröse Glocken für Batterien.

Bourne, Joseph & Son, 6, St. Pancras Station, Euston-road, N.W. Works: Denby Pottery, near Derby. *See index to advertisers.*
DEFRIES, J., & SONS, 147, Houndsditch, E. *See index to advertisers.*
Great Western Pottery & Brick Works (Candy and Co., Limited), 417-420, Mansion-house-chambers [at Brown, Stevenson & Co.].
Patent Plumbago Crucible Co., Battersea Works, Church-road, Battersea, S.W.
STIFF, JAMES, & SONS, London Pottery, Lambeth, S.E., Established 1751. POROUS CELLS, CYLINDERS and PLATES (white or red), with or without glazed edges; porous cells, specially hard (2nd and 3rd resistance), as supplied to Postal Telegraph Department for bi-chromatic batteries, or sufficiently soft and porous to suit any battery; flat porous plates, any size up to 15 in. square if required. Prize Medals—Paris (Electrical), 1881, Philadelphia. Contractors to H. M. Post Office, Colonial Telegraphs, Indian and English Railways, &c., &c. *See index to advertisers.*

Printers and Publishers of Berly's Electrical Directory.

DAWSON, WM., & SONS, 121, Cannon-st., E.C. Directory Offices: 148 & 149, UPPER THAMES-ST., E.C. *See index to advertisers.*

Publications Electrical.

F.—Publications électriques (Editeurs de).
G.—Buckhändler für Electriker.

Dawson, Wm., & Sons, 121, Cannon-st., E.C.
KNIGHT & CO., 90, Fleet-st., E.C. Electric Light Act, Glinn's. *See index to advertisers.*
Spon, E. & F. N., 16, Charing Cross, S.W.

Pulley Makers.

F.—Poulies (Fab. de).
G.—Riemscheiben—Fabr.

Duncan Bros., 32, Queen Victoria-st., E.C. *See index to advertisers.*
Mackie, J. & J., & Co., 4, Brabant-court, Philpot-lane, E.C.
Owens, S., & Co., Whitefriars-st., Fleet-st., E.C.
SELIG, SONNENTHAL & CO., 85, Queen Victoria-st., E.C. *See index to advertisers.*
Wailes, George, & Co., 258, Euston-road, N.W.
WILSON, A., & CO., Vauxhall Iron Works, Wandsworth-road, S.W. *See index to advertisers.*

Railway Signal Manufacturers.

F.—Signaux de Chemins de fer (Fab. de).
G.—Signale für Eisenbahnen.

Defries, J. & Sons, 147, Hounsditch, E. *See index to advertisers.*
Easterbrook, Hannaford & Co., 4, Queen Anne's-gate, S.W.

Railway Signal Manufacturers—*continued.*

Francis & Co. (F. R. Francis, C.E., manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.
Garnham & Co., Sash-court, Wilson-st., E.C. *See index to advertisers.*
Gloucester Wagon Co., 26, Parliament-st., S.W.
Griffith & Co., 4, Queen Anne's-gate, S.W.
Homfray & Co., 48, City-road, E.C.
India-Rubber, Gutta-Percha, & Telegraph Works Co., Limited, 106, Cannon-st., E.C.
Isca Foundry Co., 10, Bush-lane, Cannon-st., E.C.
Jones, Wm., 11, Laurence Pountney-lane, E.C.
Saxby & Farmer, Canterbury-road, Kilburn, N.W.
Stevens & Sons, 237-243, Southwark Bridge-road, S.E.
Tweedy, Joseph & Co., 15, New Broad-st., E.C.
Tyer & Co., Ashwin-st., Dalston-junction, E.

Reflector & Shade Manufacturers.

F.—Reflecteurs et Abats-jour (Fab. de).
G.—Reflector-Fabrikanten.

Chappuis, P. E., 69, Fleet-st., E.C.
Davies & Co., 34, Warwick-lane, Newgate-st., E.C.
DEFRIES, J. & SONS, 147, Houndsditch, E. *See index to advertisers.*
Deville & Co., 23, New-st.-square, E.C.
Fox, T., 30, Hatton-garden, E.C.
Lane, Wm. Moore, 47, Long-acre, W.C.
Moore, Alf., St. James's-walk, Clerkenwell, E.C.
SELINGER, M., 23, Charles-st., Hatton-garden, E.C.
Sharland & Co., 69, Fleet-st., E.C.
Taylor & Co., 90, Hatton-garden, E.C.
Ungar, Julius & Co., 52, Commercial-st., E.C.
Weston, Bros., 19, Cross-st., Hatton-garden, E.C.
Woodhouse & Rawson, 11, Queen Victoria-st., E.C. Stock kept and special patterns made to order. *See index to advertisers.*

Rivet Makers.

F.—Rivets (Fab. de).
G.—Nietnagel-Fabrikanten.

Barwell, Wm., 34, Nicholas-lane, E.C.
Belier, Chas., 16, Lower Whitecross-st., E.C.
Child Bros., 26, Martin's-lane, E.C.
Cooper, Hy. & Co., 9, Fenchurch-st., E.C.
Fellows, Green & Co., 134, Fenchurch-st., E.C.
Hartshorne, Geo. & Co., 4, Corbet-court, E.C.
Holt Bros. (Geo. W. Share & Co., agents), 72 King William-st., E.C.
Künster & Ricard, Imperial-buildings, Ludgate-circus, E.C.
Lysaght, John, 28, Gracechurch-st., E.C.
Maddever, Wm. C., 124 & 126, Commercial-st., E.
Patent Nut & Bolt Co., 24, Budge-row, E.C.
Robinson, Geo., 114, West Ferry-road, Millwall, E.
Robinson, Geo., 223, West Ferry-road, Millwall, E.
Smith, F., 11, Bond-court, Walbrook, E.C.

Digitized by Google

Rivet Makers—*continued.*

Staffordshire Bolt & Nut Co., 3 & 4, Great Winchester-st., E.C.
Tees Side Iron & Engine Works Co., 97, Cannon-st., E.C.
Tinsley, E. & Co., 19, Gracechurch-st., E.C.
Turner, S., 63, Bishopsgate-st. Within, E.C.
Von Gahlen, Emile & Co., 6, Lime-st., E.C.

Rope Manufacturers.

F.—Corde (Fab. de).
G.—Seiler.

Back, Usher, 77, Blackfriars-road, S.E.

Scientific Apparatus Makers.

F.—Appareils scientifiques (Fab. de).
G.—Wissenschaftliche Instrumente.

MAYFIELD, J. T., 41, Queen Victoria-st., E.C. Maker and Importer of every description of SCIENTIFIC APPARATUS for the purposes of demonstration and research, also makers of specialities in ELECTRICAL APPARATUS, etc.

Screw Makers.

F.—Vis (Fab. de).
G.—Schrauben-Fabriken.

Barwell, William, 34, Nicholas-lane, E.C.
Sabatier, J. & Co., 9, Bread-st.-hill, E.C.
Simpson, Jas. & Sons, 63, Bishopsgate-st. Within, E.C.

Screw, Terminal, & Small Detached Accessories Manufacturers.

F.—Vis, Bornes, et Petits accessories detachés.
G.—Schrauben und sonstige Artikel für Electriker.

Applegarth, R., & Denayrouze, A., 10, Mansion-house-chambers, 11, Queen Victoria-st., E.C. *See index to advertisers.*
Ashton & Green, Limited, 11, 12, 14 & 15, Bury-st., St. Mary-axe, E.C.
Barnett, David, Broadway-chambers, Westminster, S.W.
Challis Bros., Bushberry Works, Sidney-road, Homerton, E. *See index to advertisers.*
Combe, Taylor & Nelson, 59, 60 & 61, Hatton-garden, E.C.
DAVIS & TIMMINS, Bowling-green-lane, E.C. *See index to advertisers.*
Dockree, Edward, 16, Gee-st., Goswell-rd., E.C.
Dockree, Samuel, 48, Clerkenwell-close, E.C.
GULCHER ELECTRIC LIGHT & POWER CO., 121, Bishopsgate-st. Within, E.C. *See index to advertisers.*
Hervè, Louis, 22, Farringdon-road, W.C.
International Machine Co. (The), 118, Whitehorse-street, Commercial-road, E.
LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; and 42, Rue de Ruysbroeck, Brussels. All classes of screws, terminals, and couplings. Sole agents for Barriere & Co., Paris. Screw cutting machines, brass and iron drawn rods, etc., etc.

Screw, Terminal, &c., Manfs.—*continued.*

Lloyd Bros. & Co., 97, Cannon-st., E.C.
LONDON & PROVINCIAL ELECTRIC LIGHTING & POWER GENERATOR CO., LIMITED, 21, Gt. Winchester-st., Old Broad-st., E.C. *See index to advertisers.*
Lysaght, John, 28, Gracechurch-st., E.C.
MATTHEWS, W. H., 22, Charterhouse-square, E.C. Screws and small turned wares of all kinds. Screw Presses, Fly Presses, and Press Tools of all descriptions made and repaired. Cutting and Stamping done for the trade.
MAYFIELD, J. T., 41, Queen Victoria-street, E.C. Clamps, Binding Screws and Terminals of every description.
Miller, W. & Sons, 63, Bishopsgate-st. Within, E.C.
Munro, Wm. Robt., Granville-place, King's-cross-road, W.C.
Musgrave, Hy., 33, City-garden-row, City-road, N.
Nettlefold & Sons, Limited, 54, High Holborn, W.C.
Patent Nut & Bolt Co., Limited, 7, Laurence-Pountney-hill, E.C. Screws set—iron & steel.
Pool, Luke & Son, 132, Upper Thames-st., E.C.
SELIG, SONNENTHAL & CO., 85, Queen Victoria-st., E.C. *See index to advertisers.*
Smith, G. B., & Co., 33, Cornhill, E.C.
Spiller, Wm. & Sons, 63, Bishopsgate-st. Within, E.C.
Stevens, F. A., West Smithfield, E.C. *See index to advertisers.*
Westphalian Wood Screw Co., 18, Finsbury-circus, E.C.

Shackle Makers.

F.—Isoloirs électriques.
G.—Isolator-Fabriken.

CRYSTAL PORCELAIN POTTERY CO., LIMITED, 23, St. Swithin's-lane, E.C. Works, Cobridge, Stoke-on-Trent. *See index to advertisers.*
Maling, C. T., Ford Pottery, Newcastle-onTyne. London Sample Rooms, 20, Bartlett's-buildings, Holborn-circus, E.C. *See index to advertisers.*
Pearson, James, Whittington Moor Potteries, near Chesterfield. London Sample Rooms, 20, Bartlett's-buildings, Holborn-circus, E.C. *See index to advertisers.*

Shafting Manufacturers

F.—Transmissions (Fab. de).
G.—Schäften-Fabriken.

Duncan Bros., 32, Queen Victoria-st., E.C. *See index to advertisers.*
Hind, H. & Son., 62, Blackfriars-road, S.E.
Owens, S. & Co., Whitefriars-st., Fleet-st., E.C.

Digitized by Google

Ships-Compass Makers.

F.—Boussoles de navires (Fab. de).
G.—Schiffscompass-Fabrikanten.

Apps, A., 433, Strand, W.C. *See index to advertisers.*
Barker & Son, 12, Clerkenwell-road, E.C.
Bottomley, R. F., 11, Billiter-st., E.C.
Dent, E. & Co., 61, Strand, W.C.
Dring & Fage, 145, Strand, W.C.
Napier, D. & Son, Vine-st., York-road, Lambeth, S.E.
Reynolds, F. & C., 547, Commercial-road East, E.
Wiggins, F. & Sons, 10, King-st., Tower-hill, E.

Societies—Learned.

F.—Sociétés Savantes et Scientifiques.
G.—Wissenschaftliche Vereine.

Aëronautical Society of Great Britain, Maidenstone-hill, Greenwich, E.
British Association for the Advancement of Science, 22, Albemarle-st., W.
Chemical Society, Burlington-house, Piccadilly, W.
Civil & Mechanical Engineers' Society, 7, Westminster-chambers, Victoria-st., S.W.
Institution of Civil Engineers (The), 25, Great George-st., S.W.
INSTITUTION OF MECHANICAL ENGINEERS (THE), 10, Victoria-chambers, Victoria-st, S.W.
Meteorological Society, 30, Gt. George-st., S.W.
Royal Microscopical Society, King's College, Strand, W.C.
Royal Society, Burlington-house, Piccadilly, W.
Society of Arts, 18, John-st., Adelphi, W.C.
Society of Telegraph Engineers and of Electricians, 4, The Sanctuary, S.W.

Speed Indicator Makers.

F.—Compteurs de Vitesse (Fab. de).
G.—Apparat zum Anzeigen der Geschwindigkeit.

Applegarth, R., 11, Queen Victoria-st, E.C. *See index to advertisers.*
Elliott Brothers, 449, Strand, W.C. (Buss' Tachymeter)
Gibb, James & Co., 23, St. Mary Axe, E.C.
Groves, W., 89, Bolsover-st, S.W. Wheatstone counter.
SELIG, SONNENTHAL & CO., 85, Queen Victoria-st., E.C. *See index to advertisers.*

Spelter Manufacturers.

F.—Zinc (Fab. de).
G.—Spiauter—Fabr.

Ashby, M., 17, Laurence Pountney-lane, Cannon-st., E.C.
Bennett, W., 60, Gracechurch-st., E.C.
Bowes, A., Rothsay-st., Bermondsey New-road, S.E.
Day, Francis, & Faithfull, Guildford Paper Works, Guildford-st., York-rd., Lambeth, S.E.

Spelter Manufacturers—*continued.*

Fisher, Hugh D. & Co., 110, Cannon-st., E.C.
Gold, Wm. Henry & Co., 23, Abchurch-lane, E.C.
Howe, Wm. & Co., 4, St. Helen's-place, E.C.
Hughes, Chemery & Co., 83, Gracechurch-st., E.C.
Mummenhoff, Louis, 79, Mark-lane, E.C.
Niblett, Geo. D., 16, Wharf, Hertford-road, Kingsland, N.
Overweg, Chas., 21, Great Winchester-st., E.C.
Savary, Young & Co., 39, Lombard-st., E.C.
Schwarte & Co., 2, Lime-st.-square, E.C.
Skirrow & Mortlock, 198, Upper Thames-st., E.C.
Straeten, Edmund Van der, 11, Queen Victoria-st., E.C.

Spring Makers.

F.—Ressorts (Fab. de).
G.—Sprungfeder-Fabrikanten.

Challis Bros., Bushberry Works, Sidney-road, Homerton, E. *See index to advertisers.*
Freeman, J., 71, Galway-st., Bath-st., St. Luke's, E.C.
Hopkins, F., 30, Noble-st., Goswell-road, E.C.
Martin, A., 54, Percival-st., Clerkenwell, E.C. *See index to advertisers.*

Steam Engine Boiler Makers.

F.—Chaudières à vapeur (Fab. de).
G.—Dampfkessel—Fabr.

Appleby Bros, 89, Cannon-st., E.C.
Bellamy, John, Byng-st., Millwall, E.
Booth, Chas., 2, Talbot-court, Gracechurch-st., E.C.
Cater, Walker & Son, Grove, Great Guildford-st., S.E.
Copeland, J. & Co., 27, Martin's-lane, E.C.
Cutler, Saml. & Sons, 192, West Ferry-road, E.
Duncan Bros., 32, Queen Victoria-st., E.C. *See index to advertisers.*
Durham & Co., 23, Leadenhall-st., E.C.
East Ferry-road Engineering Works Co., Millwall, E.
Edwards & Symes, Wharf-road, Cubitt Town, E.
Fletcher, Henry, Son & Fearnall, Union Docks, Limehouse, E.
Frazer & Frazer, Bromley-by-Bow, E.
Fraser, W. J. & Co., 98, Commercial-rd. East, E.
Galloway, W. & J. & Sons, 64, Cannon-st., E.C.
Gapp, J. B. & Co., Whitecross-st., Borough, S.E.
Glengall Iron Works, Glengall-road, Millwall, E.
Harvey & Co., 186, Gresham House, Old Broad-st., E.C.
Hayes, Edward, 12, Great St. Helen's, E.C.
Horton & Son, 63, Park-st., Borough Market, S.E.
Manlove, Alliott, Fryer & Co., 50, Queen Victoria-st., E.C.
Mitchell & Fry, Emmett-st., Poplar, E.
OLRICK, LEWIS & CO., 27, Leadenhall-st., E.C. *See index to advertisers.*

Digitized by Google

Steam Engine Boiler Makers—*continued.*

Patent Steam Boiler Co., 117, Palmerston-buildings, Old Broad-st., E.C. Head office, Birmingham. Root's steam boilers, 45,000 H.P. made to 1882, unequalled for safety, efficiency, interchangeability of parts, high pressure, facility of transport, and compactness. References to eminent firms. Full particulars free.



Perkins, A. M. & Son, 6, Seaford-st., Gray's-inn-road, W.C.

Ransomes, Head & Jefferies, 9, Gracechurch-st., E.C. *See index to advertisers.*

Rennie, J. & G., 60, Holland-st., Blackfriars, S.E.

Robinson, Thos. & Son, 145, Cannon-st., E.C.

Smith, Spencer, 30, Litchfield-st., W.C.

Soutar Bros. & Co., Maria-st., Millwall, E.

South London Boiler Works, Long-lane, Bermondsey, S.E.

Stewart, J. & Son, Blackwall Iron Works, Isle of Dogs, E.

Suffield, E., Devonport-st., Commercial-road, E.

Trotman, Chas. Wm., 60, Long-lane, Borough, S.E.

Tyler (Hayward) & Co., 39, Queen Victoria-st., E.C.

Wilson, A., & Co., Vauxhall Iron Works, Wandsworth-road, S.W. *See index to advertisers.*

Yates, Wm. & John, 96, Newgate-st., E.C.

Young, J. & T., 235, Upper Thames-st., E.C.

Young, T. A. & Son, Orchard-pl., Blackwall, E.

Steam Packing Manufacturers.

See also India Rubber Steam Packing Manufacturers.

F.—Garnitures à vapeur (Fab. de).

G.—Liederungsdeckel-Fabrikanten.

Anderson, Abbott & Anderson, 37, Queen Victoria-st., E.C.

Beldam Packing and Rubber Co., 77, Gracechurch-st., E.C.

BINNEY & SON, Catherine-st., City-road, E.C. *See index to advertisers.*

Binney, Chas. Richard, 5 and 7, Hackney-rd., E.

Binswanger, G. & Co., 29, Aldermanbury, E.C.

Boorne, Thomas, 33, Elliott-road, Brixton, S.W.

Chaplin, George Henry, 97 & 98, Bishopsgate-st. Within, E.C.

Clive & Co., Suffolk-grove, Southwark, S.E.

Etherington, J., 39A, King William-st., E.C. *See index to advertisers.*

Foster & Williams, 87, Grange-road, Bermondsey, S.E.

GEHRCKENS, C. O., 18, Jewry-st., E.C.

Gibb, James & Co., 23, St. Mary Axe, E.C.

Golding, Bexfield & Co., 1, Lavers-road, Stoke Newington, N.

Harburg & Vienna Rubber Co. (The), Tower-chambers, London Wall E.C. *See index to advertisers.*

Steam Packing Manufacturers—*continued.*

Indestructible Packing Co., 9, Lea-place, East India Dock-road, E.

India Rubber, Gutta Percha, and Telegraph Works Co., Limited, 106, Cannon-st., E.C.

Ironmonger, Thos. & Co., 63, Bishopsgate-st. Within, E.C.

Lubricative Packing Co., 5, Hackney-road, E.

McDowell, Robt. Wm. Henry, 13, Bow-lane, E.C.

Mead, Fredk. M. & Co., 323D, Kennington-road, S.E.

Meiter, C. W. & Co., 86, Gracechurch-st., E.C.

Morgan & Son, 217, Blackfriars-road, S.E.

Norris, Saml. Edw. & Co., 56, 57, & 58, High-st., Shadwell, E.

Moseley, D. & Sons, 1, Milk-st., E.C.

NORTH BRITISH RUBBER CO., LD. Warehouses: 6, Charlotte-st., Mosley-st., Manchester; 57, Moorgate-st., London, E.C.; & 13 & 15, Oswald-st., Glasgow; works, Castle Mills, Edinburgh.



Poupard, Chas. G., 271, Romford-road, Stratford, E.

Quin, James & Co., 112, Queen Victoria-st., E.C.

Ross, Alex. & Co., Wright's-buildings, Grange-road, Bermondsey, S.E.

Ruffles & Butcher, 6, Wormwood-st., E.C.

SHEATH BROS., 89, City-road, E.C. *See index to advertisers.*

Skudder, Geo. & Co., Thorburn-square, S.E.

Starnes, J. S. & Sons, 19, Broad-st., Ratcliff, E.

Tuck's Packing Company, 116, Cannon-st., E.C.

United Asbestos Company, Limited (The), 161, Queen Victoria-st., E.C. *See index to advertisers.*

WARNE, W. & CO., 29, Gresham-st., E.C.

Warner & Koenig, 23, Addle-st., E.C.

White, John Hutchinson, 12, Burdett-road, E.

Willcox, W. H. & Co., 36, Southwark-st., S.E.

Witty & Wyatt, 1, Fenchurch-avenue, E.C. *See index to advertisers.*

Steel Manufacturers.

F.—Acier (Fab. d').

G.—Stahl-Werker.

Böhler Bros. & Co., 40, Princes-st., Commercial-road, S.E.

Boyd, John G. & Co., 63, Queen Victoria-st., E.C.

Brown, Bayley & Dixon, 1, Queen Victoria-st., E.C.

Brown, John & Co., 12, Fenchurch-st., E.C.

Gregory & Bramall, 7, Drapers' Gardens, E.C.

Guy, H. Augustus & Co., 11, Cloak-lane, E.C.

Heuser, Dan., 1, Fowke's Buildings, Great Tower-st., E.C.

Limburger, Falbrik, 57, Basinghall-st., E.C.

Spencer, Walter & Co., 158, Leadenhall-st., E.C.

Turton Bros. & Matthews, 34, Gracechurch-st., E.C.

Digitized by Google

Steel Manufacturers—*continued.*

Turton, Thomas & Sons, 90, Cannon-st., E.C.
Whitecross Wire & Iron Co. (J. Abercrombie, agent), 2, King William-st., E.C.

Steel and File Manufacturers.

F.—Acier et Limes (Fab. d').
G.—Stahl- und Feilen-Fabrikanten.

SMITH, G. (Agent for Sanderson Bros. & Co.), 19, Walbrook, E.C.
Smith, I., & Son, 18, St. John's-square, Clerkenwell, E.C.
Turton Bros. & Matthews, 34, Gracechurch-st., E.C.

Sulphate of Ammonia Manufacturers.

F.—Sulfate d' Ammoniaque (Fab. de).
G.—Schwefelsäures Ammonium.

Burt, Boulton & Haywood, 64, Cannon-st., E.C
Dickinson, Arthur J., Surrey Canal, Deptford, S.E.
Lockyer, Geo. & Son, 36, Mark-lane, E.C.
Queenborough Chemical Co., 18, Billiter-st., E.C.
Sadler, Saml., A., 85, Gracechurch-st., E.C.
Torr, George, Trundley's-lane, Lower-road, Deptford, S.E.

Sulphate of Copper Manufacturers.

F.—Sulfate de Cuivre (Fab. de).
G.—Kupfervitrol.

Christopherson, Clifford & Co., 17, Great Tower-st., E.C.
Orr, J. B., 46, Cannon-st., E.C.

Sulphur Refiners.

F.—Soufre (Raffineurs de).
G.—Schwefel-Läuterer.

Brandram Bros. & Co., 5, Philpot-lane, E.C.
Cesena Sulphur Co., 4, Finsbury-circus, E.C.
English Sulphur Fusion Co., 35A, Great George-st., S.W.
Forster & Gregory, Lonesome Chemical Works, Streatham-common, S.W.
Gibellini Sulphur Co., 35A, Great George-st., S.W.
Giona Sulphur Co., Wool Exchange, Coleman-st., E.C.
Italian Sulphur Co., 4, Finsbury-circus, E.C.
London Sulphur Co., 4, Victoria-st., S.W.
Scott, Wm. T. & Co., Marshgate-lane, Stratford, E.
Tharsis Sulphur & Copper Co., 9, Mincing-lane, E.C.

Sulphuric Acid Manufacturers.

F.—Acide sulfurique (Fab. d').
G.—Schwefelsäure.

Allen, Fredk. & Sons, 164, Upper North-st., Poplar, E.

Sulphuric Acid Manufacturers—*continued.*

Beckles, S. H. & Co., 6, Lime-st.-square, E.C.
Hills, Frank C. & Co., 17, Philpot-lane, E.C.
Houlder, W., Son & Co., 9, Mincing-lane, E.C.
London Chemical Co., Bow Bridge-wharf, E.
Miller & Johnson, 36, Mark-lane, E.C.
Schofield, White & Co., 4, New London-st., E.C.
Wallace, H. & Co., 60, Mark-lane, E.C.
Woodhouse & Rawson, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Sulphurous Acid Manufacturers.

F.—Acide Sulfureuse (Fab. d').
G.—Schwefelige Säure.

Bell, Thomas & Co., Vitriol Works, Stratford, E.
Ellis & Co., 59, Mark-lane, E.C.
Houlder, Wm., Son & Co., 9, Mincing-lane, E.C.
Schofield, White & Co., 4, New London-st., E.C.
Scott, Wm. Thos. & Co., Marshgate-lane, Stratford, E.

Surgeon Electricians.

F.—Chirurgiens électriciens.
G.—Chirurgen—Electr.

Lobb, H., 66, Russell-square, W.C.

Tallow Merchants.

F.—Suif (Marchands de).
G.—Talg-Händler.

Hills & Sons, Regent-st., Deptford, S.E.
Knight, J. & Sons, Silvertown, Victoria-docks, E.
MORGAN & SON, 217, Blackfriars-rd., S.E. *See index to advertisers.*
Pittam, John & Co., 82, Augusta-st., East India-road, E.
ROSE, SIR W. A. & CO., 66, Upper Thames-st., E.C.
Webb, H., Weston-st., Devon's-road, Bromley, E.
Wratten, J. T., 229, Old Ford-road, Bow, E.

Tank Manufacturers.

F.—Réservoirs en fer (Fab. de).
G.—Eiserne Bassins—Fabr.

BARR, ROBERT (Agent for OLDFIELD & WALTON), East India-dock, E. *See index for advertisers.*

Teachers of Electrical Engineering.

F.—Professeurs de Mécanique électrique.
G.—Lehrer der electrischen Ingenieurkunst.

Hammond Co. Electrical Engineering College, 2, Red Lion-square, W.C.

Teachers of Telegraphy and Electrical Science.

F.—Professeurs de télégraphie et sciences électriques.
G.—Lehrer der Telegraphie und Electricität.

Francis, F. R., C.E., Eagle Telegraph Works, Hatton-garden, E.C., & Oxford-house, Lawford-road, N.W.

Digitized by Google

Teachers of Telegraphy, &c.—*continued.*

Kent, J., 9, Railway-approach, London-bridge, S.E.

Postal Telegraph Schools, Telegraph-st., Moorgate-st.-buildings, E.C.

School of Submarine Telegraphy, Telephony & Electric Light, 12, Princes-st., Hanover-sq., W.

SCHOOL OF TELEGRAPHY & ELECTRICAL ENGINEERING (THE), 12, Princes-st., Hanover-square, W. (Established 1868). *See index to advertisers.*

Telegraph Agents.

F.—Agentes télégraphiques.
G.—Telegramm-Agenten.

Francis, F. R., C.E., Eagle Telegraph Works, Hatton-garden, E.C., & Oxford-house, Lawford-road, N.W.

McLean's Telegraphic News Exchange, 34A, Throgmorton-st., E.C.

Stuart, R. (American), 30, Throgmorton-st., E.C.

Watson (Anglo-Indian & General Telegram Agency), 27, Leadenhall-st., E.C.

Telegraph Case Manufacturers.

F.—Boîtes pour Instruments télégraphiques.
G.—Telegraphen Kasten-Fabrikanten.

FOXCROFT, W. M., 36, Percival-st., Clerkenwell, E.C. *See index to advertisers.*

Telegraph Code Ciphers.

F.—Chiffres pour Télégraphie.
G.—Chiffren-Codex für Telegraphisten.

WHITELAWS, D., 79½, Gracechurch-st., E.C.

Telegraph Companies.

F.—Télégraphes (Compagnies de).
G —Gesellschaften zur Beförderung von Telegramme.

Anglo-American, Limited. General Office, 26, Old Broad-st., E.C. Office for reception of messages, 23, Throgmorton-st., E.C.

Brazilian Submarine, Limited, 8, Great Winchester-st., E.C.

British Telegraph Manufactory, 406, Euston-road, N.W.

Compagnie Française de Télégraphe de Paris à New York, 100 & 101, Gresham-house, E.C., & 24, Royal Exchange, Old Broad-st., E.C.

Cuba Submarine, Limited, 61, Old Broad-st., E.C.

DIRECT SPANISH, LIMITED, Leadenhall-buildings, Leadenhall-st., E.C.

Direct United States Cable Co., Limited. General offices, 52, Old Broad-st., E.C. Stations:—Head office, 34, Throgmorton-st., E.C.; branch offices, South Sea-house, Threadneedle-st., E.C.; 9, East India-avenue, Leadenhall-st., E.C.; 30, Commercial sale-rooms, Mincing-lane, E.C.

Telegraph Companies—*continued.*

Eastern Extension Australasia & China, Limited, 66, Old Broad-st., E.C.

Eastern, Limited, 66, Old Broad-st. Stations:—11, Old Broad-st., E.C.; 8, Leadenhall-st., E.C.; 3, Great Tower-st., E.C.

Eastern & South African Telegraph Co., 66, Old Broad-st., E.C.

EASTERN TELEGRAPH CO., 68, Old Broad-st., E.C. Geo. Draper, Secretary. *See index to advertisers.*

Electric News Telegraph Co. (The), Limited. Chief office, 4, Ludgate-circus, E.C., and at Stock Exchange, 4, Warnford-court, E.C.

EXCHANGE, LIMITED, Bartholomew-house, 17 & 18, Cornhill, E.C.

Fox, Edwin, & Co., Limited, 5, Gt. Winchester-st., E.C., & works, Millwall, E.

German Union Telegraph & Trust Co., Limited, 66, Old Broad-st., E.C.

Globe Telegraph & Trust Co., Limited, 66, Old Broad-st., E.C.

Government Indo-European Telegraph, 49 & 50, Parliament-st., W. Director-in-chief, Lieut.-col. J. U. Bateman-Champain, R.E.; director of traffic, A. Brasher: clerks, C. W. Balls, C. Twisaday, C. Parratt, A. T. Key.

GREAT NORTHERN TELEGRAPH CO. OF COPENHAGEN (*Hermann Gustave Erichsen*, representative), 119, Bishopsgate-st. Within, E.C.

Indo-European, Limited, 18, Old Broad-st., E.C., & 9, East India-avenue, E.C.

London Platino-Brazilian Telegraph Co., Limited, 66, Old Broad-st., E.C.

Mediterranean Extension, Limited (E. Tombs, secretary), 158, Gresham-house, Old Broad-st., E.C.

Montevidean & Brazilian Co., Limited (J. Fraser, secretary), 9, King's Arms-yard, Coleman-st., E.C.

Postal Telegraph Stores—A. Bell, superintendent, Glo'ster-road, Regent's-park, N.W.; Captain McGregor Greer, superintendent, Walpole-st., New Cross-road, S.E.

Submarine Cable Trust, 66, Old Broad-st., E.C.

Submarine Telegraph Co. (Sir Jas. Carmichael, Bart.), 2, Throgmorton-avenue, E.C.

Submarine (between Great Britain & the Continent of Europe—S. McDonnel Clare, secretary). Central offices, 2, Throgmorton-avenue, E.C.

WEST COAST OF AMERICA, LIMITED, 98, CANNON-ST., E.C.

West India & Panama, Limited, Dashwood-house, 9, New Broad-st., E.C.

Western & Brazilian, Limited, 19, Great Winchester-st., E.C.

Western Union Telegraph Co., Lessees of The American Telegraph & Cable Co., 211 & 214, Gresham-house, Old Broad-st., E.C., & 21, Royal Exchange, E.C.

Digitized by Google

Telegraph Contractors.

F.—Télégraphes (Entrepreneurs de).
G.—Telegraphenbau—Contractoren.

CLARK (L.), MUIRHEAD & CO., 23, Regency-st., Westminster, S.W.
FOX, EDWIN & CO., LIMITED. Works: Millwall, E. Offices: 5, Gt. Winchester-st., E.C. *See index to advertisers.*
Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton Garden, E.C., and Lawford-rd., N.W.
Henley's (W. T.) Telegraph Works Company, Limited, 8, Drapers'-gardens, E.C. *See index to advertisers.*
Hooper's Telegraph and India Rubber Works, 31, Lombard-st., E.C.
India Rubber, Gutta Percha and Telegraph Works Co., Limited, 106, Cannon-st., E.C.
Johnson R. & Nephew, 8, Gt. Winchester-st., E.C.
Johnson & Phillips, 14, Union-ct., Old Broad-st., E.C. *See index to advertisers.*
REID BROS., 12, Wharf-rd., City-rd., N. *See index to advertisers.*
Rogers, G. F., 5, Great Winchester-st., E.C.
Rowell, D. & Co., 2, Poet's-corner, Westminster, S.W.
Sax, Julius, 108, Gt. Russell-st., W.C.
Siemens Bros. & Co., 12, Queen Anne's-gate, Westminster, S.W.
SPENCER, JAMES E. & SAMUEL, 3, Queen-st.-place, E.C.
Warden, W. M. & Co., 27, Gt. George-st., S. W.

Telegraph Engineers of Railway Companies.

F.—Télégraphes (Ingenieurs de chemins de fer).
G.—Telegraphenbau—Eisenbahn-Ingenieure.

Caledonian, H. Dunn.
Great Eastern, H. Sach. Head Offices: Liverpool-st., E.C.
Great Northern, J. Radcliffe, London Terminus, King's Cross, N.
Hedges, Rillingworth, 25, Queen Anne's-gate, Westminster, S.W.
London, Brighton & South Coast. — Houghton. Offices: London Bridge Station, S.E.
London & North-Western, — Fletcher. General Offices: Euston Station, Euston-grove, N.W.
North British, — Clements.
North-Eastern, A. Graves. City Office: Great Eastern Station, Liverpool-st., E.C.
South-Eastern, C. V. Walker, Cannon-st., E.C.

Telegraph Iron Buoy Makers.

F.—Bouées télégraphiques en fer.
G.—Eiserne Bojen für Telegraphenbau.

Duncan Bros., 32, Queen Victoria-st., E.C. *See index to advertisers.*
India Rubber, Gutta Percha, & Telegraph Works Company, Limited, 106, Cannon-st., E.C.

Telegraph Iron Buoy Makers—*continued.*

JOHNSON & PHILLIPS, 14, Union-court, Old Broad-st., E.C. *See index to advertisers.*
Jukes, Coulson, Stokes & Co., 13, Clement's-lane, E.C.
Siemens Bros., Limited, 12, Queen Anne's-gate, Westminster, S.W.

Telegraph Instrument Manufacturers.

F.—Instrumentes télégraphiques (Fab. de).
G.—Telegraphische Instrumente—Fabr.

Apps, A., 433, Strand, W.C. *See index to advertisers.*
Bibbey, J., 12, Williams-pl., Sumner-st., S.E.
BRITTAN & FOREMAN, 21, Hermes-st., Pentonville-rd., N.
CLARK (L), MUIRHEAD & CO., 23 Regency-st., Westminster, S.W.
Conti, A. E., 26a, Smith-st., Northampton-sq., E.C. *See index to advertisers.*
Driver, George, 406, Euston-rd., N.W.
Elliott Bros., 449, Strand, W.C., and 101, St. Martin's-lane, W.C.
Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-rd., N.W.
Fuller, John C. & Son, 47, Finsbury-pavement, E.C.
Garnham & Co., Sash-ct., Wilson-st., Finsbury, E.C. *See index to advertisers.*
Griffiths & Co., 4, Queen Anne's-gate, S.W. *See index to advertisers.*
GROVES, W., 89, Bolsover-st., Fitzroy-sq., W.
Henley s (W. T.), Telegraph Works Company, Limited, 8, Drapers'-gardens, E.C. *See index to advertisers.*
India Rubber, Gutta Percha & Telegraph Works Company, Limited, 106, Cannon-st., E.C.
Johnson & Phillips, 14, Union-court, Old Broad-st., E.C. *See index to advertisers.*
Laingbury, A. G., 65, East-rd., City-rd., N.
MALING, C. T., 20, Bartlett's-bldgs., Holborn, E.C. *See index to advertisers.*
ORME, J. & CO. (late M. Jackson & Co.), 65, Barbican, E.C. *See index to advertisers.*
PATERSON & COOPER, 76, Little Britain, E.C. *See index to advertisers.*
Reid Bros., 12, Wharf-rd., City-rd., E.C. *See index to advertisers.*
Siemens Bros. & Co., Limited, 12, Queen Anne's gate, Westminster, S.W.
Simmons, C. J., 56, Leverton-st., N.W. *See index to advertisers.*
Sax, Julius, 108, Gt. Russell-st., Bloomsbury, W.C.
Theiler, M. & Sons, 86, Canonbury-rd., N.
Warden, W. M., & Co., 27, Gt. George-st., S.W.

Digitized by Google

Telegraph Instrument Case Manufacturers.

F.—Instruments télégraphiques (Fab. de boites pour).
G.—Kasten für telegraphische Instrumente.

Beech, George, 14, Norfolk-road, Dalston-lane, Dalston, N.
Foxcroft, J. F., 39, Lever-st., E.C.
FOXCROFT, WM., 36, Percival-st., Clerkenwell, E.C. Wholesale Maker of the Gower Bell Telephone Cases, as adopted by Her Majesty's Government, Perforator, Lock and Block Single Needle Bell Sounder, Transmitter, Photometer, Amneter, (Ayrton & Perry's) and Indicator Cases. Prize Medal, Paris, 1881. *See index to advertisers.*
Harborow & Co., 4, Circus-st., Marylebone, W.
India Rubber, Gutta Percha and Telegraph Works Co.,Ltd., 106, Cannon-st., E.C.
Sage, Frederick, 80, Gray's-inn-road, W.C. Boxes in all woods by improved machinery.

Telegraph Paper Makers.

F.—Papier télégraphique (Fab. de).
G.—Papierfabriken für Telegraphie.

Chalfont Endless Telegraph Paper Co., 40 & 41, Kirby-st., E.C.
MAX, SABEL, 2, Coleman-st.-bldgs., E.C.
Waterlow & Sons, Ltd., 95, London-wall, E.C.
Zuber & Rieder & Co., 3, Budge-row, E.C.

Telegraph Pole (Iron) Manufacturers.

F.—Poteaux télégraphiques en fer (Fab. de).
G.—Eiserne Telegraphen-Strangen.

CLARK, L., MUIRHEAD & Co., 23, Regency-st., Westminster, S.W.
Duncan Bros., 32, Queen Victoria-st., E.C. *See index to advertisers.*
Johnson & Phillips, 14, Union-court, Old Broad-street, E.C. *See index to advertisers.*
Reid Bros., 12, Wharf-road, City-road, N. *See index to advertisers.*
Siemens Bros. & Co., Ltd., 12, Queen Anne's-gate, Westminster, S.W.
SPENCER, JAMES E. & SAMUEL, 3, Queen-street-place, E.C.
Warden, W. M. & Co., 27, Great George-st., S.W.

Telegraph Sub-Marine Cable Manufacturers.

F.—Câble télégraphique (Fab. de).
G.—Kabel-Fabriken.

Apps, A., 433, Strand, W.C. *See index to advertisers.*
Bullivant & Co., 72, Mark-lane, E.C.
CLARK, L., MUIRHEAD & CO., 23, Regency-st., Westminster, S.W.
Felton Guilleaume (W. F. Dennis & Co., Agents), 101, Leadenhall-st., E.C. *See index to advertisers.*

Telegr. (Sub-Mar.) Cab. Man.—*continued.*

FOX, EDWIN & CO., Ltd., Works: Willwall, E. Offices: 5, Great Winchester-st., E.C. *See index to advertisers.*
Francis & Co., (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.
Henley's, W. T., Telegraph Works Co., Ltd., 8, Drapers'-gardens, Throgmorton-st., E.C. *See index to advertisers.*
India Rubber, Gutta Percha and Telegraph Works Co., Ltd., 106, Cannon-st., E,C.
Johnson, R. & Nephew, 8, Great Winchester-st., E.C.
Johnson & Phillips, 14, Union-court, Old Broad-st., E.C. *See index to advertisers.*
PHILLIPS BROS., Macintosh-lane, Homerton, E., and Lea Telegraph Works, Hackney-wick, E. *See index to advertisers.*
Reid Bros., 12, Wharf-road, City-road, N. *See index to advertisers.*
Rogers, G. F., 5, Great Winchester-st., E.C.
Siemens Bros. & Co., Ltd., 12, Queen Anne's-gate, Westminster, S.W.
Smith, F. & Co., 10 and 11, Aldermanbury, E.C.

Telegraph Sub-Marine Engineers.

See also Engineers—Telegraph.
F.—Télégraphes sousmarins (Ingenieurs de).
G.—Telegraphen-Kabel—Ingenieure.

Anderson, Sir James, 66, Old Broad-st., E.C.
Andrews, W. S., 18, Old Broad-st., E.C.
Ansell, W. T., 66, Old Broad-st., E.C.
BRIGHT, EDWARD B., 31, Golden-square, W., Consulting Electrical Engineer.
CANNING, SIR SAMUEL, 7, Great Winchester-st.-buildings, Old Broad-st., E.C.
Francis, F. R., C.E., Eagle Telegraph Works, Hatton-garden, E.C., and Oxford House, Lawford-road, N.W.
India Rubber, Gutta Percha and Telegraph Works, Co., Ltd., 106, Cannon-st., E.C.
LEALE, ANDREAS FRANZ, 19 & 21, Westminster-bridge-road, S.E.
Saunders, H. C., 66, Old Broad-st., E.C.
Sax, Julius, 108, Great Russell-st., Bloomsbury, W.C., Works: Morwell-st., Bedford-sq.,W.C.
Siemens Bros. & Co., Ltd., 12, Queen Anne's-gate, S.W.
Werdemann, R., 13, Princes-st., Cavendish-square, W.

Telegraph & Telephone Wire Coverers.

F.—Fils télégraphiques recouverts (Fab. de).
G.—Fabriken zum Umspinnen des Drahtes.

Bindoff, Levi, Hodges & Co., Royal Victor Wks., Old Ford-rd., Bow, E.
CLARK, L., MUIRHEAD & CO., 23, Regency-st., Westminster, S.W.
Felten & Guilleaume (W. F. Dennis & Co., Agents), 101, Leadenhall-st., E.C. *See Index to Advertisers.*

Digitized by Google

Telegraph Wire Coverers—*continued.*

FOX, EDWIN & CO., Ld. Works: Millwall, E. Offices: 5, Great Winchester-st., E.C. *See index to advertisers.*

Fuller, John C. & Son, 47, Finsbury-pavement, E.C.

Harburg & Vienna India Rubber Co., 10, Tower-chambers, Finsbury-pavement, E.C.

India Rubber, Gutta Percha and Telegraph Works, Co., Ltd., 106, Cannon-st., E.C.

Johnson, R. & Nephew, 8, Great Winchester-st., E.C.

Johnson & Phillips, 14, Union-court, Old Broad-st., E.C. *See index to advertisers.*

Koerber, J. A., 44, Frith-st., Soho, W.

LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; 24, Rue d'Hauteville, Paris, and 42, Rue de Ruysbroeck, Brussels. Wires covered with Gutta Percha, India Rubber, Silk, Cotton, &c.

LONDON (THE), ELECTRIC WIRE CO., Wenlock-buildings, Ironmonger-row, E.C. Manufacturers of Covered Wires of all descriptions for Electrical Instruments, Dynamo-Machines, Bell, House, Telephone work, &c. Contractors to the principal Government Departments and Electric Light and Telephone Companies. *See index to advertisers.*

ORMISTON & CO., 25 and 27, Old-st., St. Luke's, E.C. *See index to advertisers.*

Phillips Bros., Macintosh-lane, Homerton, E.; and Lea Telegraph Works, Hackney-wick, E. *See index to advertisers.*

Telegraph and Telephone Wire Manufacturers.

See also Wire Manufacturers.

F.—Fils télégraphiques et téléphoniques (Fab. de).
G.—Draht Fabriken für Telegraphie.

Basse & Selve, Jeffrey's-sq., St. Mary Axe, E.C.

CLARK, L., MUIRHEAD & CO., 23, Regency-st., Westminster, S.W.

Davis & Timmins, Bowling-green-lane, E.C. *See index to advertisers.*

Dennis, W. F., 101, Leadenhall-st., E.C.

Felten & Guilleaume, 101, Leadenhall-st., E.C. *See index to advertisers.*

FOX, EDWIN, & CO., LIMITED. Works: Millwall, E. Offices: 5, Gt. Winchester-st., E.C. *See index to advertisers.*

India Rubber, Gutta Percha, & Telegraph Works Co., 106, Cannon-st., E.C.

IRON WIRE, WIRE ROPE, & FENCING CO. (THE), 2, Poet's Corner, Westminster, S.W.

Johnson, R., & Nephew, 8, Great Winchester-st., E.C.

Kugel & Berg, Jeffrey's-sq., St. Mary Axe, E.C.

LEVY, ARMAND, 252, Goswell-road, London, E.C.; 34, Rue d'Hautevelle, Paris; and 42, Rue de Ruysbroeck, Brussels, Electrical Sundriesman. *See Electrical Wire Coverers.*

Telegraph, &c., Wire Manfs.—*continued.*

LONDON ELECTRIC WIRE CO., Wenlock-buildings, Ironmonger-row, Old-st., E.C. *See index to advertisers.*

ORMISTON & CO., 25 & 27, Old-st., St. Luke's, E.C. *See index to advertisers.*

PHILLIPS BROS., Macintosh-lane, Homerton, E., & Lea Telegraph Works, Hackney Wick, E. *See index to advertisers.*

Phosphor Bronze Co., Limited, 87, Sumner-st., Southwark, S.E. Special Phosphor Bronze Wire for telephone lines. *See index to advertisers.*

Ramsden, Camm & Co., 72, King William-st., E.C. *See index to advertisers.*

Rogers, G. F., 5, Great Winchester-st., E.C.

SHROPSHIRE IRON COMPANY, LIMITED (The), 158, Leadenhall-st., E.C.

Warden, W. M. & Co., 27, Great George-st., Westminster, S.W.

Westfalischer Draht-Industrie, Verein, 1, Metal Exchange-bldgs., Whittington-ave., E.C.

Whitecross Wire & Iron Co., Ld., 2, King William-st., E.C.

Witte & Kamper (Müller, Uhlick & Co., agents), 37, King William-st., E.C.

Telegraph Works.

F.—Usines télégraphiques.
G.—Telegraphen-Fabriken.

Callender's Bitumen Telegraph & Waterproof Co., 101, Leadenhall-st., E.C.

CLARK, L., MUIRHEAD & CO., 23, Regency-st., Westminster, S.W.

FOX, EDWIN & CO., LIMITED. Works: Millwall, E. Offices: 5, Great Winchester-st. E.C. *See index to advertisers.*

Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.

Garnham & Co., Sash-court, Wilson-st., Finsbury, E.C. *See index to advertisers.*

Harburg & Vienna India Rubber Co., Tower-chambers, Finsbury-pavement, E.C.

Hooper's Telegraph and India Rubber Works, 31, Lombard-st., E.C.

India Rubber, Gutta Percha and Telegraph Works Company, Limited, 106, Cannon-st., E.C.

Johnson, R., & Nephew, 8, Great Winchester-st., E.C.

Johnson & Phillips, 14, Union-court, Old Broad-st., E.C. *See index to advertisers.*

REID BROS, 12, Wharf-road, City-road, N. *See index to advertisers.*

Sax, Julius, 108, Great Russell-st., W.C.

Siemens Bros. & Co., Limited, 12, Queen Anne's gate, Westminster, S.W.

Telegraph Construction and Maintenance Co., Limited, 38, Old Broad-st., E.C.

Digitized by Google

Telegraphic Codifiers.

F.—Codificateurs télégraphiques.
G.—Codex für Telegraphie.

Creasy, R. G., 27, Clement's-lane, E.C.
Dawson, Wm., & Sons, 121, Cannon-st., E.C.
Special Commercial Trade Book on an entirely new principle. Cheapest Code published

Telephone Apparatus Makers.

F.—Appareils téléphoniques (Fab. d').
G.—Telephon-Apparate (Fab.).

Britannia Rubber & Kamptulicon Co., 32, Cannon-st., E.C.
Conti, A. E., 26A, Smith-st., Northampton-square, E.C. *See index to advertisers.*
CUTTING, R. C., & CO., Wardrobe-chambers, Queen Victoria-st., E.C. *See index to advertisers.*
Dale, H. & E. J., 4, Little Britain, E.C., 26, Ludgate-hill, E.C. *See index to advertisers*
Elliott Brothers, 449, Strand, W.C.
Francis & Co. (F. R. Francis, C.E., Manager), Eagle Telegraph Works, Hatton-garden, E.C., and Lawford-road, N.W.
India Rubber, Gutta Percha and Telegraph Works Co., Limited, 106, Cannon-st., E.C.
LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; & 42, Rue de Ruybroeck, Brussels. Vulcanite Rods, Sheet Tube Cases, Permanent Magnets, Carbon Wires, Screws, &c.
PATERSON & COOPER, 76, Little Britain, E.C. *See index to advertisers*
Reid Bros., 12, Wharf-rd, City-road, N. *See index to advertisers.*
Sax, Julius, 108, Gt. Russell-st., W.C.
Theiler, M. & Sons, 86, Canonbury-road, N.

Telephone Case Manufacturers.

F.—Téléphones (Fab. de boîtes de).
G.—Telephon-Kasten—Fabr.

FOXCROFT, WM. M., 36, Percival-st., Clerkenwell, E.C. Telephone and Transmitter cases of every description to order. The cheapest house in the trade. Prize Medal, Paris, 1881. *See index to advertisers.*
Sage, Frederick, 80, Gray's-inn-road, W.C. Boxes in all woods by improved machinery.

Telephone Companies.

F.—Compagnies de Téléphones.
G.—Telephon-Compagnien.

Anglo-Continental, Limited, Windsor-chambers, Great St. Helen's, E.C.
Anglo-Pacific Electric Light, Telephone and Power Co., Limited (The), (José D. Husbands, General Manager), 31, Queen Victoria-st., E.C.
British & Irish Telephone & Electric Works Co., Limited, 20 Regent-st., S.W.

Telephone Companies—*continued.*

CONSOLIDATED TELEPHONE CONSTRUCTION AND MAINTENANCE CO., LIMITED, 6, Lombard-st., E.C. *See index to advertisers.*
Crossley Telephone Co., 18, Austin Friars, E.C.
EDISON-GOWER BELL TELEPHONE CO. OF EUROPE, LIMITED, 6, Lombard-st., E.C.
European Telephone Co., Limited (C. Curtoys, sec.), 6, Lombard-st., E.C.
Gower Bell Telephone Co., 6, Lombard-st., E.C.
London and Globe Telephone and Maintenance Co., Limited (The), 31, Queen Victoria-st., E.C. (H. H. Eldred, General Manager) *See index to advertisers.*
National Telephone Co., Limited (The), 11, Queen Victoria-st. E.C.
Oriental Telephone Co., Limited (W. G. Hall, sec.), 3, Great Winchester-st., E.C.
River Plate Telephone and Electric Light Co., Limited, 6, Lombard-st., E.C.
Standard Time and Telephone Co. (The), 19 & 21, Queen Victoria-st., E.C.
United Telephone Co., Ld., 36, Coleman-st., E.C.

Telephone Instrument Makers.

F.—Instruments téléphoniques (Fab. de).
G.—Telephon-Fabriken.

British & Irish Telephone & Electric Works Co., Ld., 20, Regent-st., Waterloo-place, S.W.
Hearington, A. B., 374, Euston-road, N.W.

Telephone Wire Manufacturers.

F.—Fils téléphoniques (Fab. de).
G.—Telephondraht-Fabriken.

FOX, EDWIN, & COMPANY, LIMITED. Works—Millwall, E. Offices: 5, Gt. Winchester st., E.C. *See index to advertisers.*
PHILLIPS BROTHERS, Macintosh-lane, Homerton, E., and Lea Telegraph Works, Hackney Wick, E. *See index to advertisers.*
Ramsden, Camm & Co., 72, King William-st., E.C. *See index to advertisers.*

Testing Machines for Wire, &c.

F.—Machines à essayer les fils.
G.—Probirmaschinen für Draht etc..

Hayward, Tyler & Co., 84 & 85, Upper Whitecross-st., E.C.
Kirkaldy, D., 99, Southwark-st., S.E.

Tin and Lead Foil Manufacturers.

F.—Feuilles d'étain (Fab. de).
G.—Zinn- und Bleiblätter—Fabr.

Betts & Co., Wharf-road, City-road, N.
Bouquet, Isaac, 28, Barbican, E.C.
Cauvet, Charles, & Co., 238, Blackfriars-road, S.E.
Chételat & Co., 3, Budge-row, E.C.

Digitized by Google

Tin & Lead Foil Manufac.—*continued.*

Compton, Henry, & Co., 148, Fenchurch-st., E.C.
Domeier & Co., 3, Botolph-lane, E.C.
Grosvenor, Henry, 1, Bridgewater-square, Barbican, E.C.
Johnson, W. W. & R., & Sons, Limehouse, E.
MAX, SABEL, 2, Coleman-st.-buildings, E.C. Tin and Lead Foil specially prepared for accumulators, &c.
Mitchell, James & William, 6, Bride-st., New Bridge-st., E.C.
Quirk, Barton & Co., 61, Gracechurch-st., E.C. Specially prepared for Electrical purposes. *See index to advertisers.*
Robertson, Alex., & Co., Elthorne-road, Upper Holloway, N.
Schreiber, Frederick William, 5, Bond-court, Walbrook, E.C.
Webb, D., & Co., 17, Johnson's-court, Fleet-st., E.C.
Webb, Henry Thos., 2, St. Bride's-avenue, E.C.

Tin Smelters.

F.—Etain (Fondeurs d').
G.—Zinn-Schmelzereien.

MITCHELL, R. R., & COMPANY, Gracechurch-st. Buildings, E.C.
Pinpole Tin Smelting Co., 16, Rood-lane, E.C.

Tool Manufacturers.

F.—Outils (Fab. d').
G.—Werkzeug-Fabriken.

Bray & Co., 4, Gt. St. Andrew-st., Bloomsbury, W.C.
Churchill, Charles, & Co., 28, Wilson-st., Finsbury, E.C.
Jensen, H., & Co., 78, Wardour-st., W.
Melhuish, R., & Sons, 85 & 87, Fetter-lane, Holborn Circus, E.C.
Mitchell, J. W., 94, Newington Causeway, S.E.
Pfeil & Co., 145, 147, 149, St. John-st., E.C.
SELIG, SONNENTHAL & COMPANY, 85, Queen Victoria-st., E.C. Lathes, Planing, Shaping, Milling, Drilling and Screwing Machine; "Chucks," The Standard Twist Drills, Parallel Vices, Tool Holders, Expanding Boring Tools, Fans and Forges. *See Index to Advertisers.*
Smith & Son, J., 18, St. John's-square, Clerkenwell, E.C.

Torpedo Manufacturers.

F.—Torpilles (Fab. de).
G.—Torpedo-Fabriken.

India Rubber, Gutta Percha & Telegraph Works Company, Limited, 106, Cannon-st., E.C.
McEVOY, CAPTAIN C. A., 18, Adam-st., Adelphi, W.C.

Tracers.

F.—Calquers.
G.—Durch-Zeichner.

London Drawing Office, 98, London Wall, E.C.

Trough Stone Ware for Batteries.

F.—Potterie pour Piles électriques.
G.—Topf- und Steinwaaren für electrische Batterien.

Bastin, Charles, Vauxhall Walk, S.E. *See index to advertisers.*

Tube Expanders.

F.—
G.—Röhren-Auftreiber.

DUDGEON, RICHARD, 114, Fenchurch-st., E.C. *See index to advertisers.*
Gillespie, John, 35, Queen Victoria-st., E.C.
Reid, Wm. & Co., 5, New London-st., E.C.
Selig, Sonnenthal & Co., 85, Queen Victoria-st., E.C. *See index to advertisers.*

Tube Brush Makers.

F.—
G.—Bürsten zum Reinigen der Röhren.

Anderson, John E., 114, Fenchurch-st., E.C. Boilers Tube Brushes, every description.
Aublet, Harry, & Co., 38, Spital-square, E.
Corcoran, Bryan, 31, Mark-lane, E.C.; Back Church-lane, E., & Gower's-walk, E.
Docwra, Robert, 48, Brooksby-st., Liverpool-road, N.
Francis, William, 184, Gt. Dover-st., S.E.
Gales, Wm. Henry, 56, Poplar, High-st., E.
Mallett, C. S., 120, Cannon-st., E.C.
Moriarty & Co., 70, London-st., Greenwich, S.E.
Reid, William, & Co., 5, New London-st., Fenchurch-st., E.C.. Tube Brushes, Expanders, Stoppers, &c. of every description.
Sadler, Matthew, 240, Long-lane, S.E.
Sadler, Thomas, 6, Union-road, Newington Causeway, S.E.
Starnes, J., & Sons, 13, Broad-st., Ratcliff, E., and 4, New London-st., Fenchurch-st., E.C.
Stewart, Andrew & James, 235, Upper Thames-st., E.C. (Agents—J. Gillespie & Co.)
Topham, Charles & Co., 3A, Coleman-st., Bunhill-row, E.C.

Tube Makers—Brass and Copper.

F.—Tubes—Laiton et Cuivre.
G.—Röhren—Messing und Kupfer.

Anderson, John C., 155, Fenchurch-st., E.C.
BARR, ROBT., Agents for Oldfield & Walton, East India Dock, E. *See index to advertisers.*
Birmingham Battery & Metal Company, 21, Gresham-house, Old Broad-st., E.C.
BOLTON, THOMAS & SONS, Broad-st. Metal Works, Birmingham.
Clifford, Chas. & Son, 148, Gresham-house, Old Broad-st., E.C.

Digitized by Google

Tube Makers—Brass & Copper—*continued.*

Everitt, A. & Sons, 118, Cannon-st., E.C.
Schölzig, O., 9, New Broad-st., E.C.
Smith, John & Sons, 18, 23 & 24, St. John's-square, E.C.
Vivian, H. H. & Co., 10, Laurence Pountney-lane, E.C.
Wilkes, J., Mapplebeck & Co., 9, New Broad-st., E.C.

Tube Makers—Iron.

F.—Tubes—Fer.
G.—Röhren—Eisen.

"Abyssinian" Tube Wells, 100, Bunhill-row, E.C.
Alma Tube Works, 145, Queen Victoria-st., E.C.
ANDERSON, JOHN C., 155, Fenchurch-st., E.C.
BARR, ROBT., Agent for Oldfield & Walton, East India Dock, E. *See index to advertisers.*
Beck & Co., Limited, 130, Great Suffolk-st., Southwark, S.E.
Birmingham Patent Iron & Brass Tube Company, 77, Cannon-st., E.C.
Brotherton, John, 3, Jeffrey's-square, St. Mary Axe, E.C.
Burt, J. H. & Co., 1A, Laurence Pountney-hill, E.C.
Caledonian Tube Company, 27, Leadenhall-st., E.C.
Cohen, Daniel & Co., 8 & 9, Chiswell-st., Finsbury, E.C.
DAVIS, T., Palace-chambers, 9, Bridge-st., Westminster, S.W.
DUNCAN BROS., 32, Queen Victoria-st., E.C. *See index to advertisers.*
Exton, Berridge & Partners, 127, Page-st., S.W.
General Iron Foundry Company, 43, Upper Thames-st., E.C.
Gibb, James & Co., 23, St. Mary Axe, E.C.
Gill & Russell, 53, Gracechurch-st., E.C.
Gillespie, John & Co., 235, Upper Thames-st., E.C.
Gillespie, John, 123, Bishopsgate-st. Within, E.C.
Glydon, Shorthouse & Glydon, 1A, Laurence Pountney-hill, E.C.
Govan Tube Company, 3, Queen-st.-place, Cannon st., E.C.
Hildick, Mills & Hildick, 56, Leadenhall-st., E.C.
Holmes, W. C. & Co., 80, Cannon-st., E.C.
Irons, W. H., 18 & 19, Upper Ground-st., Blackfriars-road, S.E. (Sheet-iron.)
Isca Foundry Company, 10, Bush-lane, Cannon-st., E.C.
Jackson, Wm. & Sons, 17, Sun-st., Finsbury, E.C.
Lewis, E. & Sons (W. Reid & Co., Agents), 5, New London-st., Fenchurch-st., E.C.
Lloyd & Lloyd, 90, Cannon-st., E.C.
Perkins, Anger, March & Son, 6, 7 & 8, Seaford-st., Gray's-inn-road, W.C.

Tube Makers—Iron—*continued.*

Peroni, Louis, 45, Hatton-garden, E.C.
Piedboeuf & Co., 9, New Broad-st., E.C.
Plaskynaston Tube Company, 158, Leadenhall-st., E.C.
Pritchard, T., 4, Corbet-court, Gracechurch-st., E.C.
Russell Bros., 110, Cannon-st., E.C.
Russell, James & Sons, 108, Southwark-st., S.E.
Russell, John & Co., 145, Queen Victoria-st., E.C.
Sanders, H. G. & Son, Victoria-gardens, Ladbroke-road, W.
Skidmore, H. P., 19, Gracechurch-st., E.C.
Smith, John & Sons, 18, 23 & 24, St. John's-square, E.C.
Spencer, John, 3, Queen-st.-place, E.C.
SPENCER, JAMES E. & SAMUEL, 3, Queen-st.-place, E.C. Works: West Bromwich. Warehouse: 3, Three Cranes-lane, E.C. Engineers, Agents & Manufacturers of all kinds of plant for Telegraph, Telephone & Railway Co's.; also sole Agents for JOHN SPENCER, Maker of all kinds of Tubes, from ¼ inch to 5 feet, Telegraph Poles, Point Rods, &c.
Stanton Bros., 73, Shoe-lane, E.C.
STANTON IRON WORKS COMPANY (THE), LIMITED, Palace-chambers, 9, Bridge-st., Westminster, S.W.
Stewart, Andrew & Jas., Clyde Tube Works, 235, Upper Thames-st., E.C.
TAUNTON, R. H. & HAYWARD, 117, Palmerston-buildings, Old Broad-st., E.C. Also Makers of Steel Tubes, & all descriptions of Engineering work entailing use of Tubes.
Thames Bank Iron Company (The), Upper Ground-st., S.E.
Wilkes, John & Sons, 9, New Broad-st., E.C.
Winfield, R. W. & Co., 47, Holborn Viaduct, E.C. *See index to advertisers.*

Tube Makers—Lead.

F.—Tubes—Plomb.
G.—Röhren—Blei.

Ashton & Green, Limited, 11, Bury-st., St. Mary-axe, E.C.
BARR, ROBT., Agent for Oldfield & Walton, East India Docks, E. *See index to advertisers.*
Clark, F. A. & Son, Marlborough-wharf, Hammersmith, W.
Grey & Marten, Southwark-bridge, S.E.
Lambert, W. T., 9, Tabernacle-row, City-rd., E.C.
Pontifex (E. & W.) & J. Wood, 7, Shoe-lane, E.C.
QUIRK, BARTON & CO., 61, Gracechurch-st., E.C. *See index to advertisers.*

Turbine & Water Wheel Makers.

F.—Turbines et Roues hydrauliques.
G.—Turbinen und Wasserräder.

ALLEN, W. H. & CO., York-st. Works, Lambeth, S.E. *See index to advertisers.*

Digitized by Google

Turbine & Water Wheel Man.—*continued.*

Duncan Bros., 32, Queen Victoria-st., E.C. *See index to advertisers.*
GWYNNE & CO., Essex-st. Works, Victoria-embankment, W.C. Makers of Girard's celebrated Turbines.
Mackenzie, T. & Sons, 16, Holborn-viaduct, E.C.
Nell, Fred. 26, Mark-lane, E.C.
Owens, S. & Co., Whitefriars-st., E.C.

Valve Manufacturers.

F.—Clapets (Fab. de).
G.—Ventil-Fabriken.

Beck & Co., Limited, 130, Great Suffolk-st., S.E.
Cort, Robt. & Son, 21, Lower Bland-st., S.E.
Dennis, T. H. P. & Co., 4, Queen Victoria-st., E.C.
Dewrance, John & Co., 158, Great Dover-st., S.E.
Donkin, B. & Co., Southwark Park-road, S.E.
Duncan Bros., 32, Queen Victoria-street, E.C. Electric Valve-closing Apparatus Makers. *See index to advertisers.*
Gwynne, J. & H., 89, Cannon-st., E.C.
Holmes, W. C. & Co., 80, Cannon-st., E.C.
Hunt & Mitton, 11, Queen Victoria-st., E.C.
Moreland, Richard & Son, 3, Old-st., E.C.
Owens, S. & Co., Whitefriars-st., Fleet-st., E.C.
Rhodes, B., 240, Bow-road, E.
Russell, John & Co., 145, Queen Victoria-st., E.C.
Thomson's Patented Ball Valves (office of), 43, Bloomsbury-st., W.C.
Tyler, J. & Sons, 2, Newgate-st., E.C.

Vulcanite Manufacturers.

F.—Vulcanite (Fab. de).
G.—Gummi-Fabriken.

BINSWANGER, G. & CO., 33, Aldermanbury, E.C.
Britannia Rubber & Kamptulicon Co., 32, Cannon-st., E.C.
Burge & Warren, 42, Kirby-st., Hatton-gdn., E.C.
FOSTER & WILLIAMS, 87, Grange-road, Bermondsey, S.E.
Gelbfuss, H., 63, Finsbury-pavement, E.C.
Hanover Vulcanite Co., Moorgate-station-buildings, 63, Finsbury-pavement, E.C.
Harburg India Rubber Comb Co , 138, London-wall, E.C. *See index to advertisers.*
Harburg & Vienna India Rubber Co., 10, Tower-chambers, Finsbury-pavement, E.C.
India Rubber, Gutta Percha & Telegraph Works Co., Limited, 106, Cannon-st., E.C.
NEW YORK HAMBURG INDIA RUBBER CO., 8, Coleman-st., E.C.
Scottish Vulcanite Co., Limited, 5, Aldermanbury-postern, E.C.
SHEATH BROS., 89, City-road, E.C. *See index to advertisers.*
Winter, F., 138, London-wall, E.C.. *See index to advertisers.*
Woodhouse & Rawson, 11, Queen Victoria-st., E.C. *See index to advertisers.*

Vulcanized Fibre Manufacturers.

F.—Fibre vulcanisée (Fab. de).
G.—Gumnifaser-Fabriken.

Davis & Timmins, Bowling-green-lane, E.C. *See index to advertisers.*
India Rubber, Gutta Percha & Telegraph Works Co., Limited, 106, Cannon-st., E.C.
PATENT VULCANIZED FIBRE CO. (Mosses & Mitchell, Sole Agents), 62, Queen Victoria-st., E.C. *See index to advertisers.*

Watches (Non-magnetizable) Makers.

F.—Montres non-magnétisables.
G.—

Dent, E. & Co., 61, Strand, W.C.
Thwaites & Reed, Bowling-green-lane, E.C. Watches & Clocks.

Wire Coverers.

F.—Fils recouverts (Fab. de).
G.—Fabrik zum Umspinnen des Drahtes.

Holloway, Edwin, 2, Gutter-lane, Cheapside, E.C. Agent for W. Rickard, Derby. *See index to advertisers.*
WOODHOUSE & RAWSON, 11, Queen Victoria-street, E.C. Special sizes covered to order immediately with cotton, asbestos and silk. A large quantity of the ordinary sizes kept in stock. *See index to advertisers.*

Wire Covering Machine Makers.

F.—Machines à recouvrir les fils.
G.—Maschinen zum Drahtenspinnen—Fabr.

Duncan Bros., 32, Queen Victoria-st., E.C. *See index to advertisers.*
LEVY, ARMAND, Electrical Sundriesman, 252, Goswell-road, London, E.C.; 34, Rue d'Hauteville, Paris; and 42, Rue de Ruysbroeck, Brussels. Gutta Percha & India Rubber Covering Machines.
SELIG, SONNENTHAL & CO. (American), 85, Queen Victoria-st., E.C. *See index to advertisers.*

Wire Draw-Plate Makers.

F.—Plaques Pour Tréfileurs.
G.—Drahteisen-Fabriken.

Duncan Bros., 32, Queen Victoria-st., E.C. *See index to advertisers.*
HOLDSWORTH, SAMUEL, 54, Spencer-st., Clerkenwell, E.C. Jewel Holes for drawing Wire.

Digitized by Google

Wire Drawers and Manufacturers.

F.—Fils (Fab. de).
G.—Draht-Zieher.

Arney & Co., 23, Ironmonger-row, E.C.
Beckh, Gorg. Adam, 6, Love-lane, E.C.
Bedford, Steer, End & Co., 78, Long-lane, S.E.
Berger, J. U. & Sohn, 8, Coleman-st., E.C.
Binns, Alfred & Co., 4, Redcross-street, E.C.
Birmingham Battery & Metal Company, 21, Gresham-house, Old Broad-st., E.C.
Böcking, E. & Co., 101, Leadenhall-st., E.C.
Burt, J. H. & Co., 1A, Laurence Pountney-la., E.C.
Campion, J., 65, Ellesmere-road, Roman-rd., E.
Cohen, Daniel & Co., 8 & 9, Chiswell-st., E.C.
Cookes & Swinnerton, 16, Rood-lane, E.C.
Croggon & Co., 200, Upper Thames-st., E.C.
Davis & Timmins, Bowling-green-lane, E.C. *See index to advertisers.*
Dawans, A., & Orban, H., 9, New Broad-st., E.C.
Day, C., jun., 8, Nelson-terrace, City-road, N.
Dennis, W. F. & Co., 101, Leadenhall-st., E.C.
Düsseldorfer, Eisen & Draht-Industrie, 6, Lime-st., E.C.
Elliott's Metal Co., Limited, 93, Cannon-st., E.C.
Evered, R. & Co., Limited, 27, Drury-lane, W.C.
Everitt, A. & Sons, 118, Cannon-st., E.C.
Farwig, August H. & Co., 26, Upper Thames-st., E.C.
Felton & Guilleaume, 101, Leadenhall-st., E.C. *See index to advertisers.*
FOX, EDWIN & CO., LIMITED, WORKS —MILLWALL, E.; OFFICES—5, GREAT WINCHESTER-ST., E.C. MANUFACTURERS OF SPECIALITIES IN FENCING WIRE. *See index to advertisers.*
Frank, Theodore, 1, Scott's Yard, Bush-la., E.C.
Glydon, Shorthouse & Glydon, 1A, Laurence Pountney-lane, E.C.
Goddard, J. & J., 68, Tottenham-court-road, W.
Haspe Iron & Steel Works, Jeffrey's-square, St. Mary Axe, E.C.
Hattemore, M. & Co., 265, Bethnal-green-rd., E.
HAWKINS BROS. & CO., Bowling-green-lane, Farringdon-road, E.C.
Henley's (W. T.) Telegraph Works Co., Limited, 8, Drapers'-gardens, E.C. *See index to advertisers.*
Jackson, W. & Sons, 17, Sun-st., Finsbury, E.C.
Johnson, R. & Nephew, 8, Great Winchester-st., E.C.
JOHNSON, T. B., 4, Charles-st., City-rd., E.C.
Kugel & Berg, Jeffrey's-sq., St. Mary Axe, E.C.
Kunster & Ricard, 11, Queen Victoria-st., E.C.
Lloyd Bros. & Co., 3, Queen-st.-place, Cannon-st., E.C.
LONGFORD WIRE, IRON & STEEL CO., LIMITED, 68, Cornhill, E.C.
Müller, Uhlich & Co., 37, King William-st., E.C.
Newall, R. S. & Co., 130, Strand, W.C.
ORMISTON & CO., 25 and 27, Old-st. St. Luke's, E.C. *See index to advertisers.*
Overweg, Chas., 21, Great Winchester-st., E.C.
Paxton, Wm. Jas., 132, Upper Thames-st., E.C.

Wire Drawers and Manufac.—*continued.*

PHILLIPS BROS., Macintosh-lane, Homerton, E., and Lea Telegraph Works, Hackney Wick, E. *See index to advertisers.*
Potter, F. W., 16, Hill-st., Finsbury, E.C. Brass, H. C. copper, German silver, platinum, &c.
Power, F. A. & Co., 63, Bishopsgate-st. Within, E.C.
Quitmann, J. & Co., 132, Queen Victoria-st., E.C.
Ramsden, Camm & Co., 72, King William-st., E.C. Binding wire. *See index to advertisers.*
Reinhard, G., 9, New Broad-st., E.C.
Rickard, William, Derby (E. Holloway, agent), 2, Gutter-lane, Cheapside, E.C. *See index to advertisers.*
ROWELL, D. & CO., 2, Poet's Corner, Westminster, S.W.
Russell & Son, 73, Stibbington-st., Oakley-square, St. Pancras, N.W.
Sanderson Bros. & Co., 19, Walbrook, E.C
Schölzig, O., 9, New Broad-st., E.C.
Schwarte & Co., 2, Lime-st.-square, and Fenchurch-avenue, E.C.
Scott, F. W., 63, Bishopsgate-st. Within, E.C.
Shaw's Brow Iron Company, 93, Upper Thames-st., E.C.
SHROPSHIRE IRON CO., LIMITED (THE), 158, Leadenhall-st., E.C.
Smith, F. & Co., 11, Aldermanbury, E.C.
Smith & Sons, I., 18, St. John's-square, Clerkenwell, E.C.
Stanton Bros., 73, Shoe-lane, E.C.
STIEBER, JOHN, BALTH & SON, 5, Godliman-st., Doctors' Commons, E.C. Manufacturer of high conducting copper wire.
Taylor, Saml. Irwin, 5, Little Love-lane, Wood-st., E.C.
Taylor, D. F. & Co., 89, Newgate-st., E.C.
Thomée, F., 8, Coleman-st., E.C.
Trurnit, F., 18, Finsbury-circus, E.C.
Vivian, H. H. & Co., 2, Lombard-court, E.C.
Windfield, W. R. & Co., 47, Holborn Viaduct, E.C.
Witte & Kamper (Müller, Uhlick & Co. agents), 37, King William-st., E.C.

Wire Gauge Manufacturers.

F.—
G.—Draht-Messer.

Potter, F. W., 16, Hill-st., Finsbury, E.C. (Micrometers.)

Wire Manufacturers—Brass & Copper.

F.—Fils bronze et cuivre.
G.—Draht—Kupfer und Messing.

Basse & Selve, Jeffrey's-square, St. Mary Axe, E.C.
Birmingham Battery & Metal Co., 21, Gresham-house, Old Broad-st., E.C.
Clifford, Chas. & Son, 148, Gresham-house, Old Broad-st., E.C.

Digitized by Google

Wire Manfs.—Brass & Copper—*continued.*

Davis & Timmins, Bowling-green-lane, E.C. *See index to advertisers.*

Everitt, Allen & Sons, 118, Cannon-st., E.C.

Felten & Guilleaume (W. F. Dennis, agent), 101, Leadenhall-st., E.C. *See index to advertisers.*

FOX, EDWIN & CO., LIMITED. Works, Millwall, E.; offices, 5, Gt. Winchester-st., E.C. *See index to advertisers.*

Harrison, Geo., 20, Drury-lane, W.C.

India-Rubber, Gutta-Percha, & Telegraph Works Co., Limited, 106, Cannon-st., E.C.

Kuhn, Ernest, 7, Savage-gdns., Tower-hill, E.C.

LONDON (THE) ELECTRIC WIRE CO., Wenlock-buildings, Ironmonger-row, E.C. Makers of special wire for Electrical purposes. *See index to advertisers.*

ORMISTON & CO., 25 & 27, Old-st., St. Luke's, E.C. *See index to advertisers*

PHILLIPS BROS., Macintosh-lane, Homerton, E., and Lea Telegraph Works, Hackney Wick, E. *See index to advertisers.*

Rickard, William, Derby (E. Holloway, agent), 2, Gutter-lane, Cheapside, E.C. *See index to advertisers.*

Smith, Frederick & Co., 10 & 11, Aldermanbury, E.C.

Vivian, H. H. & Co., 10, Laurence Pountney-lane, E.C.

Wire Manufacturers—Galvanized Iron.

F.—Fils Fabr.—Fer galvanisé.
G.—Draht—Galvanisches Eisen.

BARR, ROBT. (agent for Oldfield & Walton), East India Dock, E. *See index to advertisers.*

Felten & Guilleaume (W. F. Dennis, agent), 101, Leadenhall-st., E.C. *See index to advertisers.*

FOX, EDWIN & CO., LIMITED. Works, Millwall, E.; Offices, 5, Gt. Winchester-st., E.C. *See index to advertisers.*

Gospel Oak Iron & Galvanized Iron and Wire Co., 56, Upper Thames-st., E.C.

Henley, W. T., Telegraph Works Co., 8, Drapers'-garden's, Throgmorton-st., E.C. *See index to advertisers.*

India Rubber, Gutta Percha & Telegraph Works Co., Limited, 106, Cannon-st., E.C.

Newall, R. S. & Co., 130, Strand, W.C.

Rickard, William Derby (E. Holloway, agent), 2, Gutter-lane, Cheapside, E.C. *See index to advertisers.*

Schölzig, O., 9, New Broad-st., E.C.

Witte & Kamper (Müller, Uhlick & Co. agents), 37, King William-st., E.C.

Wire Manufacturers—Insulated.

F.—Fils-isolés.
G.—Isolatorischer Draht.

Lewis, G. C. & Son, 1, Lowndes-terrace, Knightsbridge, S.W.

Walters, Daniel & Sons, 43 & 45, Newgate-st., E.C. Wire Insulating Machine, patented 1881.

Wire Manfs.—Insulated—*continued.*

Werdermann, Richard, 121, Bishopsgate-street Within, E.C.

Wire Manufacturers—Iron.

F.—Fils—Fer.
G.—Draht—Eisen.

Beckh, G. A., 6, Love-lane, Aldermanbury, E.C.

Burt, J. H. & Co., 1A, Laurence-Pountney-lane, E.C.

Davis & Timmins, Bowling-green-lane, E.C. *See index to advertisers.*

Edelsten, W. & Co., 89, Newgate-st., E.C.

Eschweiler Wire Co., Limited, 21, Gt. St. Helen's, E.C.

Felten & Guilleaume (W. F. Dennis & Co., agents), 101, Leadenhall-st., E.C. *See index to advertisers.*

FOX, EDWIN & CO., LIMITED. Works, Millwall, E.; Offices, 5, Gt. Winchester-st., E.C. For iron and steel fencing. *See index to advertisers.*

Gospel Oak Iron & Galvanized Iron & Wire Co., 56, Upper Thames-st., E.C.

Harrison, George, 20, Drury-lane, W.C.

Haybridge Iron Co., Limited, 4, Corbet-court, Gracechurch-st., E.C.

India-Rubber, Gutta-Percha & Telegraph Works Co., Limited, 106, Cannon-st., E.C.

Iron Wire, Wire Rope & Fencing Co. (The), 2, Poet's-corner, Westminster, S.W.

Johnson, R. & Nephew, 8, Gt. Winchester-st., E.C.

Kugel & Berg, Jeffrey's-square, St. Mary Axe, E.C.

LONGFORD WIRE, IRON & STEEL CO., LIMITED, 68, Cornhill, E.C.

Nettlefolds, Limited, 9, Fenchurch-avenue, E.C.

Newall, R. S. & Co., 130, Strand, W.C.

Rickard, William, Derby (Holloway, E., agent), 2, Gutter-lane, Cheapside, E.C. *See index to advertisers.*

Schölzig, O., iron and steel wire, bright, annealed, galvanized, or coppered, 9, New Broad-st., E.C.

Whitecross Wire & Iron Co., Limited, 66, Queen st., E.C.

Witte & Kamper (Muller, Uhlick & Co., agents), 37, King William-st., E.C.

Wire Manufacturers—Phosphor Bronze.

F.—Phosphor Bronze.
G.—Draht—Phosphor Bronze.

India Rubber, Gutta Percha & Telegraph Works Co., Limited, 106, Cannon-st., E.C.

Phosphor Bronze Co., Limited, sole manufacturers of phosphor bronze and silico-bronze wire for telegraphs, telephones, and other electrical purposes. Phospor bronze for bearings and other wearing parts of machinery, &c., 87, Sumner-st., Southwark, S.E. *See index to advertisers.*

Digitized by Google

Wire Manufacturers—Steel.

F.—Fils (Fab. de)—Acier.
G.—Draht-Fabriken—Stahl.

Cookes & Swinnerton, 16, Rood-lane, E.C.
Edelsten, W., & Co., 89, Newgate-st., E.C.
Felten & Guilleaume (W. F. Dennis & Co., agents), 101, Leadenhall-st., E.C. *See index to advertisers.*
FOX, EDWIN, & CO., LIMITED, Works—Millwall, E.; Offices—5, Gt. Winchester-st., E.C. *See index to advertisers.*
India Rubber, Gutta Percha & Telegraph Works Co., Limited, 106, Cannon-st., E.C.
Johnson, R., & Nephew, 8, Great Winchester-st., E.C.
LONGFORD WIRE, IRON & STEEL CO., LIMITED, 68, Cornhill, E.C.
Newall, R. S., & Co., 130, Strand, W.C.
Sanderson Bros. & Co., Limited, 19, Walbrook, E.C.
Smith & Son, J., 18, St. John's-square, Clerkenwell, E.C.
United Agencies, Limited, Jeffrey's-square, St. Mary Axe, E.C.
Witte & Kamper (Muller, Uhlick & Co., agents), 37, King William-st., E.C.

Wire Rope Manufacturers.

F.—
G.—

Bossomaier, R. & Co., 72, Finsbury-pavement, E.C.
FOX, EDWIN, & CO., LIMITED, Works—Millwall, E.; Offices—5, Gt. Winchester-st., E.C. *See index to advertisers.*

Wire Staples Manufacturers.

F.—Crochets pour fils de fer.
G.—Draht-Krampen.

REYNOLDS & CO., 57, New Compton-st., Soho, W.C. Flat wire especially prepared for fixing conducting wires.

Wire Workers and Weavers.

F.—Fils (Façonneurs de).
G.—

Aiano, Chas., sen., 161, Poplar High-st., E.
Aiano, Edwin, 65, Upper East Smithfield, E.
Aylmer, John, 53, Whitechapel-road, E.
Bacon & Wayman, 16, Hill-st., Finsbury-sq., E.C.
Baker, Thomas, 22, St John-st., West Smithfield, E.C.
Barnard, Bishop & Barnards, 91, 93 & 95, Queen Victoria-st., E.C.
Bedford, Steer, End & Co., 78 to 90, Long-lane, Borough, S.E.
Brown, J. B. & Co., 90, Cannon-st., E.C.
Butler, Jas. & Sons, 4, Elm-street, Gray's-inn-road, W.C.
Caraccio, J & M., 221, Gray's-inn-road, W.C.
Caston, George & Co., 29, Great Dover-st., S.E.
Ciceri & Co., 4, Eyre-st.-hill, Clerkenwell-rd., E.C.
CLARK, JOHN, 46 & 47, High-st., St. Giles', Broad-st., W.C.
Corcoran, Witt & Co., 30, Mark-lane, E.C

Wire Workers & Weavers—*continued.*

Cockle, Wm. & Co., 139 & 140, Bermondsey-st., S.E.
Dell, Wm., Rawbonn & Son, 26, Mark-lane, E.C.
Dennis, W. F. & Co., 101, Leadenhall-st., E.C.
Dobson, H. T., 52, 55 & 56, Borough-road, S.E.
Dovey, Edmund, 73, Whitfield-st., Fitzroy-square, W.
Dupree, Charles, 201, Green-st., Bethnal-gn, E.
Duke, Waring & Crisp, 139, Wardour-st., W.
Edelsten & Co., 94, Sun-st., Bishopsgate, E.C.
Edwards, Wm., 62, Flood-st., Chelsea, S.W.
Farwig & Bullock, 16, Rupert-st., Haymarket, W.
Fehler, Wm., 44, Dock-st., London Docks, E.
Fox, Walter, 323, Mile End-road, E.
Gardner, John, 499, Cambridge-road, E.
Green, Wm., 98, Albany-road, Camberwell, S.E.
Gummer, George, 50, Church-st., Deptford, S.E.
Groom, Joseph, 249, Great College-st., N.W.
Hernulewicz, E. S. & Co., 47, Moorgate-st., E.C.
Holliday, R., 31A, Beaufort-st., Chelsea, S.W.
Howard, Wm. Hy., 23, Ossulston-st., N.W.
Hubbard, John, 162A, City-road, E.C.
Hughes, James & Sons, 217, Great Dover-st., S.E.
Jameson, Robert, 262, Upper-st., Islington, N.
Janes, Francis D. & Son, 101, Aldersgate-st., E.C.
Jennings, Thos. S., 22, Farringdon-road, E.C.
Johnson, Richard, 8, Great Winchester-st., E.C.
Lysaght, John, Limited, 28, Gracechurch-st., E.C.
Main, A. & J. & Co., 108, Queen Victoria-st., E.C.
Mantica, Anthony, 30, Remington-st., City-rd, N.
Moriarty & Co., 70, London-st., Greenwich, S.E.
Myers, Alfred Jas., 19, Walpole-st., New Cross-road, S.E.
Patis, Bennett, 32, Marshall-st., Golden-sq., W.
Petty, Jas. Hampton, 4, Bolsover-st., W.
Pill, Leonard Joshua, 95, Kingsland-road, E.
Potter, F. W., 16, Hill-st., Finsbury-sq., E.C.
REYNOLDS & CO., 57, New Compton-st., W.C.
Rowbotham, Samuel, 9, New Broad-st., E.C.
Sharman, David, 14A, Napier-st., Shepherdess-walk, Hoxton, N.
Shields, Mrs. Susnh., 21 & 22, Clarendon-st., Tabard-st., Borough, S.E.
Syree, Edward, 89, St. John-st., E.C.
Thomas, J. J. & Co., 87, Queen Victoria-st., E.C.
Tierney, Matthew, 337, New North-road, N.
Ungley, Wm. Thos., 35, Mount Pleasant, Gray's-inn-road, W.C.
West London Wire Works, 2, Allen's-court, Oxford-st., W.
Whitecross Wire & Iron Company, 66, Queen-st., E.C.
Young, J. & Co., 29, Judd-st., King's Cross, W.C.

Wood-working Machinists.

F.—Machinistes (façonnant le bois).
G.—Fraiser.

Duncan Bros., 32, Queen Victoria-st., E.C. *See index to advertisers.*
SMITH, G. (Agent for W. Furness & Co.), 19, Walbrook, E.C.
Worssam, Saml. & Co., Oakley Works, King's-road, Chelsea, S.W.

Digitized by Google

The only GAS ENGINE that drives Electric Lights Perfectly Steady.

CLERK'S PATENT GAS ENGINE.

HIGHEST AWARD FOR MOTIVE POWER,

BRITISH SECTION, INTERNATIONAL EXHIBITION OF ELECTRICITY.

PARIS, 1881.

GOLD MEDAL AWARDED,

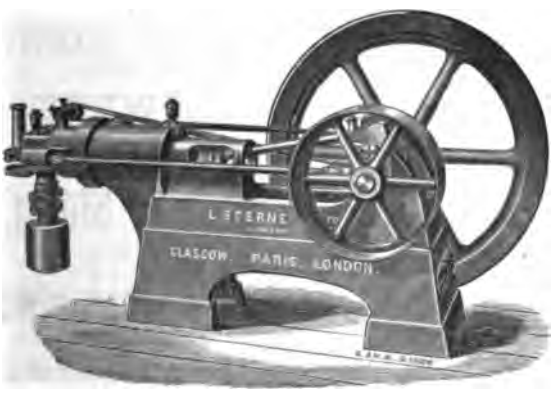
CRYSTAL PALACE ELECTRICAL EXHIBITION.

LONDON, 1882.

ABSOLUTELY STEADY.

SIMPLE.

COMPACT.



CHEAP.

SAFE.

RELIABLE.

ECONOMICAL.

THIS ENGINE has AN IGNITION AT EVERY REVOLUTION and is UNEXCELLED for all Purposes where a STEADY POWER is required, such as ELECTRIC LIGHTING. It is extremely SIMPLE, has NO GEARING WHEELS of any kind, is NOISELESS in action, and the POWER IS MUCH GREATER for the Size of the Engine, THAN IN ANY OTHER GAS ENGINE.

SOLE MAKERS

L. STERNE & CO., LIMITED,

THE CROWN IRON WORKS,

GLASGOW AND MANCHESTER,

LONDON OFFICE.—10, Victoria Chambers, Westminster.

PARIS OFFICE.—10, Rue Lafitte.

Digitized by Google

FELTEN & GUILLEAUME,

Telegraph Engineers,

101, LEADENHALL STREET, LONDON.

CARLSWERK, MULHEIM-ON-RHINE, NEAR COLOGNE, GERMANY.

MANUFACTURERS OF

TELEGRAPH WIRE (to any Specification.)

COVERED WIRE for TELEPHONES and for ELECTRIC LIGHTING.

GUTTA PERCHA AND INDIA RUBBER CORES.

TELEGRAPH AND TELEPHONE CABLES.

TORPEDO & FIELD TELEGRAPH CABLES.

CABLES FOR BLASTING PURPOSES, &c., &c.

Agents for Great Britain:—W. F. DENNIS & Co.

Telegraphic Address:—CARLSWERK, Cologne.

The Duplex Electric Light, Power & Storage Company,

LIMITED,

Chief Offices—9, SOHO SQUARE, LONDON, W.

The Business of this Company embraces every department of Electricity, and the supply of every description of Machines, Apparatus, Materials and Accessories required for Electrical Work.

A special feature of the Company's operations consists in undertaking Electric Installations, for Lighting, Heating, Motive-Power, etc., by means of Batteries, thereby avoiding the expense and inconvenience of Steam Engines and Dynamos.

Many important Contracts have been successfully carried out by the Company, and detailed Specifications, Estimates, Price Lists, etc., can be had upon application to the Secretary, Mr. G. F. Barton, at the Head Offices, as above.

DYNAMOS.
MOTORS.
ARC-LAMPS.
INCANDESCENT DITTO.
ELECTRICAL BELLS.
DO. BURGLAR ALARMS.
DO. FIRE ALARMS.

SWITCHES.
CUT-OUTS.
PRIMARY BATTERIES.
STORAGE DO.
TELEGRAPHS.
TELEPHONES.
&c., &c., &c.

CABLES.
WIRES.
HEATING APPARATUS.
COOKING DO.
ELECTRIC BOILERS,
DO. GRIDIRONS.
DO. OVENS.

Digitized by Google

VULCANITE.

SHEETS.
RODS.
TUBES.

HARBURG INDIA-RUBBER COMB CO.,
London Warehouse: F. WINTER,
138, LONDON WALL, WOOD ST., E.C.

MOULDED ARTICLES TO ORDER.

Battery Cells.
Insulators.
Telephone Cases.

EBONITE.

J. A. BERLY'S

COUNTRY

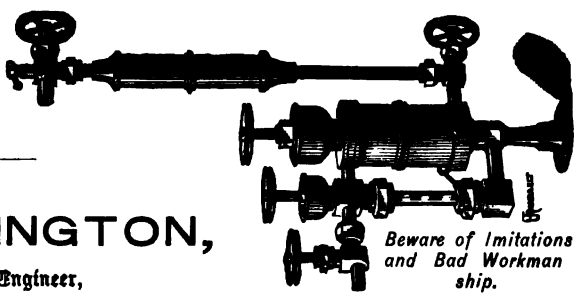
TRADES DIRECTORY.

ETHERINGTON'S

IMPROVED SELF-ACTING LUBRICATOR.

This is the most perfect in the market for Feeding the Lubricant to Valves and Cylinders of Steam Engines.

This Lubricator should claim the serious consideration of all who use steam power, and their Engineers in charge.



Beware of Imitations and Bad Workmanship.

Prices, &c., to

JOHN ETHERINGTON,

Consulting and Inspecting Engineer,

39a, KING WILLIAM STREET, LONDON BRIDGE.

Digitized by Google

THE

'BUCKETT' CALORIC ENGINE

1 to 30 Horse-power.

NO EXPLOSIONS POSSIBLE.

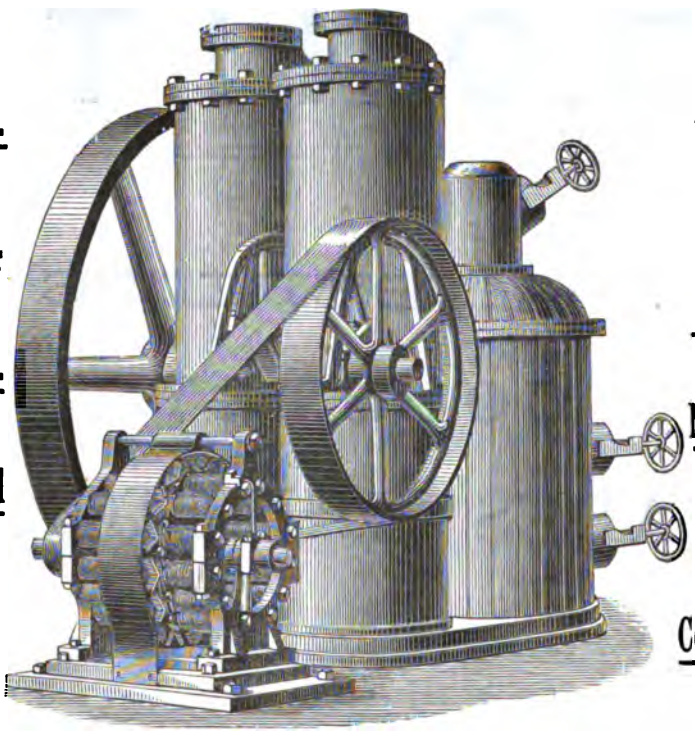
SAVES 75 PER CENT. IN THE WORKING.

No Smoke.

No Boiler.

No Danger.

No Skilled Labour.



No Water.

No Open Fire.

No Trouble.

No Pipe Connections.

Will work for Years WITHOUT REPAIRS.

SUITABLE FOR

ELECTRIC LIGHTING,

DOMESTIC, INDUSTRIAL & AGRICULTURAL PURPOSES

For Sailing Vessels, Barges or Flats; for Country Houses and other Buildings where Steam is prohibited or Gas unobtainable, this Engine offers unexceptional advantages.

APPLY TO

THE CALORIC ENGINE & "SIREN" FOG SIGNAL Co. LIMITED,

24, BUDGE ROW, CANNON STREET, E.C.

Digitized by Google

COUNTRY CLASSIFIED TRADES.

Accumulators of Electricity.

F.—Accumulateurs d' Electricité.
G.—Electrische Accumulatoren.

Electric Carbon Storage & Apparatus Manufacturing Co. of Scotland, Limited, Exchange-buildings, Leith.

Acid Manufacturers.

F.—Acides (Fab. d')
G.—Säure-Fabrikanten.

Fielding & Higginbottom, New Mills, Stockport.
HARRIS, PHILIP & CO., 9, Bull-ring, B'ham.
Shorthouse, Joseph & Sons, 65, Shadwell-st., Birmingham.

Air-Tight Glass Case Makers.

F.—Vitrines hermétiques.
G.—Luftdichte Glaskasten.

Smart, F., 91, Newhall-st., Birmingham.
Swingewood, A., 21, Caroline-st., Birmingham.

Alkali Manufacturers.

F.—Alcali (Fab. d').
G.—Alkali-Fabriken.

Burnett, Thos. & Son, Lombard-st., Newcastle.
Brunner, Mond & Co., Winnington Park, Northwich.
Cook Brothers, 44, Dean-st., Newcastle.
Hazlehurst & Sons, Camden Works, Runcorn.
Richards, Kearne & Co., Malkin's Bank, Retchton, Sandbach.
Runcorn Soap & Alkali Co., Limited, Runcorn.
Walker Alkali Co., 9, Dean-st., Newcastle.
Wigg Bros. & Steele, Old Quay Copper & Alkali Works, Runcorn.

Ammonia Manufacturers.

F.—Ammoniaque (Fab. d').
G.—Ammonium-Fabriken.

Earp, Wm. R. & Co., Hutton-road, Runcorn.

Anti-Friction Metal Makers.

F.—Metal Anti-Friction.
G.—Anti-Friction-Metall-Fabrikanten.

Allen, Harrison & Co., Lower Cambridge-st. Works, Manchester.
Alley & MacLellan, 33, Virginia-st., Glasgow.
Bailey, W. H. & Co., Albion Works, Essex-st., Salford.

Anti-Friction Metal Makers—*continued.*

Chadderton & Haigh, Alma-bridge Works, Dunkinfield, Cheshire.
Fuller, W. M., jun., Old Church-chambers, St. Peter's-close, Wolverhampton.
Hall, West & Co., Abbey Works, Nuneaton, Warwickshire.
Malleable Iron & Carbon Co., Springfield-lane, Salford.
Price & Heanes, 69, Ratcliff-st., Bristol.
Storey, I. & Sons, 35, Little Peter-st., Manchester.

Antimony Refiners & Dealers.

F.—Antimonie (Raffineurs et Marchands d').
G.—Antimonium-Läuterer und Händler.

Cookson & Co., Willington Quay, Newcastle.
Wilson, Alfred E., 102B, Great Charles-st., Birmingham.
Holman, Rogers, Michell & Co., City-buildings, Old Hall-st., Liverpool.

Asbestos Manufacturers & Mine Owners.

F.—Amiante (Fab. d').
G.—Asbest-Fabrikanten.

Asbestos Italian Mining & Manufacturing Co., 31, Dutton-st., Manchester.
Asbestos Manufacturing Co., Limited, 19, Mount-st., Manchester.
Bell, J., 11, St. Vincent-place, Glasgow.
Dewhurst, John & Son, 143, Tinsley-road, Sheffield.
Patent Asbestos Manufacture Company, Limited, 31, St. Vincent-place, Glasgow.
Reynolds, Thomas, 100, Aston-road, Birmingham.
Scottish Asbestos Co., Limited, 106, St. Vincent-st., Glasgow.
WILSON, ALFRED E., 102B, Great Charles-st., Birmingham.
Witty & Wyatt, 69A, West Regent-st., Glasgow.
Wotherspoon, James & Son, 97, Wellington-st., Glasgow.

Asbestos Merchants.

F.—Amiante (Marchands d').
G.—Asbest-Händler.

Hollywood, W., 15, Margaret-st., High John-st., Glasgow.
Wotherspoon, James & Son, 97, Wellington-st., Glasgow.

Digitized by Google

Assayers.

F.—Essayeurs.
G.—Edelmetall-Schmelzer.

Day, Edward, 28, Warstone-lane, Birmingham.
HARRIS, PHILIP & CO., 9, Bull-ring, B'ham.
Watson, W. H., Leopold-st., Sheffield.
Westwood, C., 53, Great Hampton-st., B'ham.

Balance Makers.

F.—Balances.
G.—Waagen.

Wood, Alex. & Son, 14, Stockwell-st., Glasgow.

Barytes Makers.

F.—Baryte (Fab. de).
G.—Baryte-Fabrikanten.

Birkenhead Barytes Co., Limited, 89, Catchcart-st., Birmingham.
Hegginbotham, G. W., Cadster, Chapel-en-le-Frith; & Shallcross Mills, Fernilee, Whaley-bridge, Derbyshire.
Morten, Adam, Yeardsley-cum-Whaley, Stockport.
Stevens & Co., Matlock Dale, Matlock Bath, Derbyshire.
Warhurst, W., Town End, Chapel-en-le-Frith.
Wheatcroft, J. W., Cromford, Derby.

Battery Jar Manufacturers.

F.—Jarres pour Piles Electriques.
G.—Batterie-Glocken.

Boland, W., 1, Caroline-st., Birmingham.
BOURNE, JOSEPH & SONS, Denby Pottery, near Derby. London Office and Show Rooms, 6, St. Pancras Station, Euston-road, N.W. Every description of Stoneware for Chemists and Electricians.
Kirkham, W., London-road, Stoke-on-Trent.
MALING, C. T., Ford Pottery, Newcastle-on-Tyne. London Sample-rooms, 20, Bartlett's-buildings, Holborn Circus, E.C.
PEARSON, JAMES, Whittington Moor Potteries, near Chesterfield. London Sample-rooms, 20, Bartlett's-buildings, Holborn-circus, E.C.

Battery Manufacturers.

F.—Piles Electriques.
G.—Electrische Batterien.

HARRIS, PHILIP & CO., 9, Bull-ring, Birmingham.
Morris Brothers, Hartington-building, Branston-st., Birmingham.
Walker, Sidney F., Black Boy-yard, Nottingham.
Wilson, Alfred E., 102B, Great Charles-st., Birmingham.

Belting Manufacturers.

See Driving Band Makers.

Bismuth Merchants.

F.—Bismuth (Marchands de).
G.—Bismuth-Händler.

Wilson, Alfred E., 102B, Great Charles-st., Birmingham.

Black Lead Manufacturers.

F.—Graphite (Fab. de).
G.—Reissblei.

Freeman & Ellison, Brunswick-avenue, Beverley-road, Hull.
Hargreaves Brothers & Co., Cleveland-st., Groves, Hull.
Storry, Witty & Co., 150, Church-st., Wilcolmlee, Hull.
Waddington, T., West View, Bridlington Quay, Hull.

Boiler Non-Conducting Composition Makers.

F.—Calorifuge (Fab. de).
G.—Composition zur Verdichtung der Dampfkessel.

Binyon, Alf., 2, Parsonage, Manchester.
Chambers, T. F. & Co., 51, High-st., Hull.
Day & Sons, Brigg.
Wotherspoon, James & Sons, 97, Wellington-st., Glasgow.

Boiler Tube Brush Makers.

F.—
G.—Bürsten zum Reinigen der Röhren—Fabr.

Rooke, E., Mary-st., Caroline-st., Birmingham.
Rowatt, Alexander & Co., 25, Candleriggs, Glasgow.

Bolt & Nut Manufacturers.

F.—Boulons et Ecrous.
G.—Bolzen- und Schrauben-Fabriken.

Adams, William, 16½, Moor-st., Birmingham.
Albert Iron Co. (Hunter & Black, Whifflet), Coatbridge, Glasgow.
Archer, John & Son, Darlaston, Birmingham.
Ashforth, Joseph & Co., Bruce Works, Nowbray-st., Sheffield.
Aston, Joseph, 2nd Court, Ashted-row & 26th Court, Windsor-st., Birmingham.
Baird, A. & Son, 67, Robertson-st., Glasgow.
BARWELL, WILLIAM, Stockley Bolt & Nut Works, Birmingham. Insulator-Arm, Shakle and all kinds of Bolts, Nuts, Screws, &c.
Bayliss, Jones & Bayliss, Victoria Works, Wolverhampton.
Bennie, David & Son, 68, Mitchell-st., Glasgow.
Bilsland, John, 37, Elliot-st., Glasgow.
Brooke, Wm., Boardman-st., Hyde.
Cartwright, Dickinson & Gregory, Sheaf Island Works, Pond-hill, Sheffield.
Child Brothers, Falcon Works, Smethwick.

Digitized by Google

Bolt & Nut Manufacturers—*continued.*

Clutha Bolt Works, Vermont-st., Glasgow.
Clyde River Works Co., 115, Dundas-st., Kingston, Glasgow.
Cooper, George & Sons, Effingham Nut & Bolt Works, Effingham-road, Sheffield.
Crosher, Wm. & Co., Portman-st., Glasgow.
Dempster, Moore & Co., 49, Robertson-st., Glasgow.
Donald, John & Son, 42, Cadogan-st., Glasgow.
Edmunds, Henry Creswick, & Co., 45, Burbury-st., Lozells; Office, 1, Ropewalk, Dale End, B'ham.
Fagan, J. & W., 271, Pollopshaws-rd., Glasgow.
Foster, John, 15½, Wynn-st., Birmingham.
Hamnet, J., Mount-st., Lord-st., Stockport.
Hardie, Alex. & Co., 4, York-st., Glasgow.
Hastie, J. & Co., 14, Ann-st.-bridge, Glasgow.
Hill, Saml., Castle-st., Stalybridge.
Hooper, Peter, 29, Morville-st., Birmingham.
Howat, Wm., Victoria Bolt & Rivet Works, Cranstonhill, Glasgow.
Johnson, Henry, Exchange Works, Egerton-st., Sheffield.
Johnson, Thomas, Ecclesfield, Sheffield.
Johnson, William, Napier Screw & Rivet Works, Napier-st., Sheffield.
Kerr Brothers, Nelson & Co., 175, W. George-st., Glasgow.
Laing, R. G., 29, Waterloo-st., Glasgow.
Lester, Wm., 58, Renfield-st., Glasgow.
McCorkindale, Arch., 27, Douglas-st., Glasgow.
McLean, Andrew & Co., 155, Canning-st., Glasgow.
McLellan, P. & W., 127-129, Trongate, & Clutha Iron Works, Vermont-st., Glasgow.
McNeil, Charles junr., 270, West Scotland-st., Glasgow.
Midland Bolt & Nut Co., Star Works, Smethwick, near Birmingham.
Miller, J. & Co., 204, Stobcross-st., Glasgow.
Moon, Thos., 9th Court, 39, High-st., Deritend, Birmingham.
Motherwell, Wm., 49, Bath-st., Glasgow.
Patent Nut & Bolt Co., Limited, London Works, Smethwick, Birmingham.
Patent Nut & Bolt Co., Limited, 120, Buchanan-st., Glasgow.
Patent Rivet Co. (Allcock & Harley, Proprietors), Rolfe-st., Smethwick, Birmingham.
Pearce, John, 242, Moseley-st., Birmingham.
Periam, Edward Thomas, 77, Bagot-st., B'ham. *See index to advertisers.*
Phœnix Bolt & Nut Co., Handsworth, Birmingham.
Pugh, Charles Henry, Whitworth Works, Rea-st.-south, Birmingham.
Ramage & Whitehead, 30, Cadogan-st., Glasgow.
Reid, John, 31, King-st., S.S., Glasgow.
Rose, Jas. & Sons, Govan Bolt & Rivet Works, Helen-st., Govan, Glasgow.
Smith, George, New Spring-st., Birmingham.
Souter, Wm. & Co., Preston & Albany-sts., Glasgow.
Staffordshire Bolt, Nut & Fencing Co., Limited, Providence Works, Darlaston, Birmingham.
Staffordshire Bolt Co., 128, Hope-st., Glasgow.

Bolt & Nut Manufacturers—*continued.*

Star Iron Co., 68, Mitchell-st., Glasgow.
Stewart, Charles R., 40, St. Enoch-sq., Glasgow.
Stones Brothers, Brook-st., Smethwick, B'ham.
Stott, Lees & Buckley, Cowhill Iron Works, Oldham.
Tyne Bolt & Rivet Co., Gateshead.
Victoria Bolt & Rivet Works, 37, Elliot-street, Glasgow.
Ward, Thomas, 148, Woodbourn-road, Attercliffe, Sheffield.
Warden, F. H. (screw), 27 & 28, Lionel-st., B'ham.
Wilson, Wm. & Alex., 156, James-st., Bridgeton Cross, Glasgow.

Brass Founders & Manufacturers.

F.—Fondeurs de Bronze.
G.—Messing-und Kupfer-Giessereien.

Andrews' Foundry Co., 21, Cumberland-street, Birmingham.
Andrews, John, 32, Rupert-st., Birmingham.
Biddell, Adolphus, 70, Cheapside, Birmingham.
Bradley, Joseph John, 15, Henrietta-st., B'ham.
Brazier, Benjamin, 45½, Smith-st., Gt. Hampton-row, Birmingham.
Cox, Daniel, 47, Leopold-st., Birmingham.
Embley, S., 130, Heath Mill-lane, Birmingham.
Evans, W., 13, Traffic-st., Derby.
Fanthom, Thomas, 62, Moseley-st., Birmingham.
Furney, John, 114, Bridge-st.-west, Birmingham.
HILL, W., 453, New John-st.-west, B'ham.
Hubball, Joseph, 305, Summer-lane, B'ham.
HUGHES, JOHN & JOSEPH, 76, Aston-st., Birmingham. *See index to advertisers.*
HUNT, MITTON & CO., 14 & 15, Oozells-st., Birmingham. (Gun & Metal).
Jennings, James, 11, Great Russell-st., B'ham.
Keatley, Jas., 400, New John-st.-west, B'ham.
Kingston, John, 11, Woodcock-st., Birmingham.
Palmer, Thomas, 15, Staniforth-st., Birmingham.
Peakman, Joseph & Co., 107, Floodgate-street, Birmingham.
Smith Brothers & Co., Hyson Green Works, Hyson-green, Nottingham.
Spratt, James, 166, Tennant-st., Birmingham.
Tranter, Wm., 13th Court, Coleshill-st., B'ham.

Brass Finishers.

F.
G.

Bainbridge, Wm., Middlegate-st., Hartlepool.
Bush, J., Curzon-st., Derby.
Erring, Thomas, Deptford & Bridge End Foundries, Bishopwearmouth.
Moss, W. 7, Warser-gate, Northumberland-st., Nottingham.
Murdy, Geo., 55, Church-gate, Leicester.
Ormston, H., Tweed-st., Bishopwearmouth.
Smith, J., Traffic-st., Derby.
Thew, Thos., 112, High-st.-east, Sunderland.
Webster, J., Traffic-st., Derby.

Digitized by Google

Brass (& Copper) Founders.

F. Fondeurs de Bronze et Cuivre.
G. Messing-und Kupfer-Schmelzer.

Adams, Arthur & Son (stamped), 27 & 28, Northwood-st., Birmingham.
Allcock Brothers, 232, 233 & 234, King Edward's-road, Birmingham.
Allen, George, 97½, Hockley-st., Birmingham.
Alender, William & Thomas, 71 & 72, Great Lister-st., Birmingham.
Andrews' Foundry Co., 21, Cumberland-street, Birmingham.
Anstey, Joseph, 48, Barford-st., Birmingham.
ARMSTRONG, STEPHENS & CO., 15, Whittall-st., Birmingham.
Armstrong, John, 34, St. James'-square, Wolverhampton.
Asbury, Jas. Sam., Brettel-lane, Stourbridge.
Aston, Tho., Cophall-st., Great Bridge, West Bromwich.
Auster, Charles H., 59, Skinner-lane, Birmingham. Manufacturer of General and Cabinet Brass Foundry.
Baily, W. H. & Co., Albion Works, Salford, Manchester.
Bainbridge, Wm., Middlegate-st, Hartlepool.
Baker, Chrstph. & Sons, King Edward's-place, Broad-st., Birmingham.
Baker Brothers, 35 (back of), Baker-st., Smallheath, Birmingham.
Barnes, J., Alfreton-st., Nottingham.
Barnes, John Clarke, 4th Court, Dymoke-street, Birmingham.
Barnes, Wm. jun., 19, Great Hampton-st., B'ham.
Barron, S., Fat Bank Foundry, Oldbury.
Beeley, Jsph., 143, Rockingham-lane, Sheffield.
Bellamy & Bach, 35, Livery-st., Birmingham.
Bennett & Bailey, Mill-st., Mossley, Manchester.
Benton Brothers, Rodley-lane, Sheffield.
Benwell, Geo., 5, Carpenter's-rd., Lozells, B'ham.
Bickley, Chas. Henry, 1, King Alfred's-place, Birmingham.
Billington & Newton, Vulcan Foundry, Longport, Burslem.
Boyce, James & Son, 25 & 26, Alcester-street, Birmingham.
Breedon, J. & W. & Booth, Cheapside & New Mill Works, Fazeley-st.; office at Cheapside Works; Birmingham.
Brittain, J. & T., Hope Foundry, Chesterton, Newcastle.
Brettel, J. O., Shrub-hill, Worcester.
Brown & Bellamy, 208A, Aston-rd., Birmingham.
Bryden, Wm. & Son, 17, West Regent-st. Glasgow, & 55, George-st., Edinburgh.
Burton, John, Borough Brass & Iron Works, Stalybridge.
Carr, Charles, Broad-st., Birmingham, & Grove-lane, Smethwick.
Cartland, James & Son, 95 to 98, Constitution-hill, Birmingham.
Chance & Mallins, Tyndall-st. Works, Camden-st., Birmingham. Pulley Rods & Fittings, Cast & Stamped Brass Foundry in every variety.

Brass (and Copper) Founders—*continued.*

Chesterton, J., Brittania Works, Station-street, Walsall.
Churn, J., Bucknall Foundry, Stoke-on-Trent.
City Tube Works & Brass Foundry, 35, Rose-st., S.S., Glasgow.
Clarke Brothers, 34, Harford-st., Birmingham.
Clark & Sons, G., Waterhouse-lane, Hull.
Clarke & Timmins, 28, Exeter-row, Holloway-head, Birmingham.
Clarke, Thomas & Sons, Bridge Foundry, Carlton-road, Attercliffe, Sheffield.
Collins, James, 26, Cumberland-st., Birmingham.
Cope & Collinson, 19A, Summer-row, Birmingham.
Courtney, Wm. & Co., 1st Court, Hicks-square, Birmingham.
Crawford & Bain, 79, Finnieston-st., Glasgow.
Crompton Winfield Electric Light Association, Cambridge-st., Works, Birmingham, & 49, Farringdon-st., London, E.C. *See index to advertisers.*
Dobbs Brothers, Dudley-road, Wolverhampton.
Dobson, J. W., Baker-st., Hull.
Douglass, Wm. & Co., Earl Foundry, 53, Bond-st., Coventry.
Dunlop, Wm., 79, Bothwell-st., Glasgow.
Dutson & Co., 55, St. Paul's-square, Birmingham.
Easdale, R. M. & Co,, 126, Bothwell-st., Glasgow.
Eagle Iron Works Co., Bond-st., Coventry.
Easton, A., 134, Renfield-st., Glasgow.
Edmunds, Hy., Creswick & Co., 45, Burby-st., Lozells; office, 1, Ropewalk, Dale End, B'ham.
Ellaway, Henry Horn, 95, Lombard-st., B'ham.
Elliot, E., Neale's-yard, Wheeler-gate, N'ham.
England, W., 4, Turner-street, Suffolk-road, Sheffield.
Errington, Thomas, Deptford & Bridge End Foundries, Bishopwearmouth.
Etchells, Joseph, Turnock-st., Macclesfield.
Evans, C., St. Martin's-gate, Worcester.
Evans, W., School-st., Wolverhampton.
Everard, J., 52, St. Enoch-square, Glasgow.
Evered, Richard & Co., Limited, Surrey Works, Smethwick, Birmingham.
Evered, Richard & Co., Limited, 263, Argyle-st., Glasgow.
Eyland & Sons, 11, Lower Rushall-st., Walsall.
Farnol, Henry John, jun., 55 & 57, New-street, Aston, New Town, Birmingham.
Foden, Edwin, Elworth Foundry, Booth-lane-head, Sandbach.
France & Morgan, 79 to 91, Warroch-st, Anderston, Glasgow.
Frantz, Henry & Co., 22, 23 & 24, New Canal-st., Birmingham.
Greenway, Clive, Vale & Co., Lower Loveday & Princip-sts., Birmingham.
Greathead, Alfred, 149, Great Hampton-row, Birmingham.
Gorbals Brass Foundry, 99, Portugal-st., Glasgow.
Glydon, Geo., 40 & 41, Oozells-st., Birmingham.
Gibbons, Joseph Smith & Son, 41, High-street, Aston New Town, Birmingham.
Garrad, William, Warwick Works, 49, Warwick-st., Birmingham.

Digitized by Google

Brass (and Copper) Founders—*continued.*

Hale, G. & Co., Shirt End Foundry, near Dudley.
Hales, W. H., Cobridge, Burslem, Stafford.
Hall, R., Foxholes, York.
Hall, S., Newgate-st., Worksop.
Hallam, J., Morledge, Derby.
Hancock & Son, Wheelock Foundry, Sandbach.
Hands Bros., 68, Kent-st., Birmingham.
Hands, John & Sons, Cardigan works, Belmont-row, and A B-row, Birmingham.
Harcourt, Robert & Son, 223, Moseley-street, Birmingham.
Harding & Melbourne, Wilderspool Iron Works, Latchford, Warrington.
Hardy, J. J. & Co., Sunniside, Hartlepool.
Hargrove, Samuel & Sons, 44, Princip-street, Birmingham.
Harris, Robert, 63½, Gt. Hampton-st., Birmingham.
Harris, W., Summer-lane, Erdington.
Harrison, Fredk. A., Albion works, Legge-lane, Birmingham.
Hawkins, J. & Son, Hill Top Brass Foundry, West Bromwich.
Hart, Son, Peard & Co., Grosvenor works, Grosvenor-st. west, Birmingham.
Heath, Saml., Cobden works, 116, Leopold-st., Birmingham.
Heaton, W., Marsbro'-st., Marsbro', Rothrhm.
Henderson & Walker, 220, Bradford-street, Birmingham.
Hickman, Joseph Thomas, 4, Upper Portland-st., Aston-park, Birmingham.
Hicks, John, 24 & 26, Charles-st., Sheffield.
Hicks, Robert, 21 & 22, Goodrick-st., Birmingham.
Hill & Sons, Albion works, Horsley-fields, Wolverhampton.
Hopkins, William & Son, Seymour works, Albert-st., High-st., Birmingham.
Hodges, Rowland, 12, Frederick-st., Newhall-hill, Birmingham.
Horton, John & Co., Oxford Brass works, Bailey-st., Sheffield.
HUGHES, JOHN & JOSEPH, 76, Aston-st., Birmingham. *See index to advertisers.*
Hunt, Mitton & Co., 14 & 15, Oozelle-street, Birmingham.
Jennens, J. & T., 64, Villa-st., Hockley, B'ham.
Jones, H. J., 35, Northwood-st., Birmingham.
Jones & Askin, 22, 23 & 24, Lower Loveday-st., Birmingham.
Illidge, S. & Son, Alexandra Foundry, Wolverhampton.
Loach & Clarke, 20 to 23, Essington-street, Islington, Birmingham.
Lloyd, R. & Co., 135 & 136, Steelhouse-lane, Birmingham.
Mills, Thomas & Walter, 244, Icknield-st., and 9 & 11, Park-road, Hockley, Birmingham.
Marshall, G. & Co., 153, Bloomsbury-st., B'hm.
Marrian, James Pratt, 4, 5 & 6, Slaney-street, Birmingham.
Marsden, G. & Son, 53, Backfields, Sheffield.
Priest & Co., Croft Brass works, Sheffield.
Payne & Griffiths, 15, Severn-st., Birmingham.

Brass (and Copper) Founders—*continued.*

Pemberton, Thos. & Sons, 156, Livery-street, Birmingham.
Powell, Charles Marshall, 37 & 38, Aston-road, and 65, 66 & 67, Bagot-st., Birmingham. Manufacturer of Cased Tubing.
Robbins & Co., Fountain works, Fountain-st., Dudley, Birmingham.
Rigby, J. & Sons, Old and New Brittania works, Wednesbury.
Richmond, David, 35, Rose-st., S.S., Glasgow.
Ratcliff, Joseph & Sons, 21 to 31, New Summer-st., Summer-lane, and 7, Unett-st., B'ham.
Smith, John & Sons, 61, Chester-st., Birmingham.
SMITH & CHAMBERLAIN, 3 to 6, New Bartholomew-st., and 120, New Canal-street, Birmingham.
SMITH & BAKER, 108, Aston-road, B'ham.
Showell, Edwin & Sons, Lower Loveday-street-works, Birmingham.
Sanderson, James, Phœnix works, St. Mary's-road, Sheffield.
Timings, S. & Co., 188 Narstone-lane, & 23 Gt. Hampton-st., Birmingham.
Thomas, George, 7, Lawrence-st., Birmingham.
UNDERHILL, JAMES & JOSEPH, Rifle Hill Brass Foundry, Whitehead-rd., Aston-park, Birmingham.
Victoria Engineering Co., Limited, Portwood, Stockport.
Vivian, H. H. & Co., 46, George-st. Parade, Birmingham.
Walker & Co., 81, Camden-st., Birmingham.
Walker, S., Station-st., Mansfield.
Walker, T., 20, St. Luke's-st., Derby.
Walker, W., Victoria-st., Newark.
Wallace & Connell, 63, M'Alpine-st., Glasgow.
Walton, E. & Co., Snow-hill, Wolverhampton.
Ward & Forrest, 78, Parade, Birmingham.
Wasteneys & Co., Eckington, Chesterfield.
Watson, Arch & Co., 36, George-st., Glasgow.
Watson, Henry, 39, High Bridge, Newcastle.
Watson, John, Newgate-st., Morpeth.
Watt, Chas. & Co., 30, W. George-st., Glasgow.
Watts, Martin, Catherine-st., Macclesfield.
Wearing Bros., 132, Holloway-bank, Wednesbury.
Wearing, M. & Son, The Bridge, Wednesbury.
Wearing, Geo., Carter's-green Foundry, West Bromwich.
Wearing, J., Alma-st., Mesty Croft, Wednesbury.
White, J. & Co., 30 Pershore-st., Birmingham.
WHITFIELD, JAMES, 38 & 39 Oxford-st., Birmingham.
Whitehouse, George, Barford-st., Birmingham.
Wild, William, Neepsend Brass Works & Liverpool-st., Attercliffe, Sheffield.
Wilks, James, 28, Great Hampton-st., B'ham.
Wilson, Henry & Co., Phœnix Works, Stockton-on-Tees.
Wilson, John C. & Co., 99, Portugal-st., Glasgow.
Wilson, Alfred E., 102B, Great Charles-st., B'ham.
Wright Bros., Havelock-st., Leicester.
WRIGHT, HERBERT H., Hospital-st. Works, Birmingham.

Digitized by Google

Brass Masters and Merchants.

F.—Bronze (Usines et Marchands de).

G.—Messing-Former und Händler.

Anchor Tube Company, Gas-st., Birmingham.
ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
BARWELL, JOHN & SONS, 28, Pickford-st., Birmingham.
Bassett, Bagnall & Co., 3, James-st., B'ham.
Birmingham Battery & Metal Co. (Wm. Gibbins, manager), Selly Oak, & 79, Digbeth, B'ham.
Birmingham Patent Iron & Brass Tube Co., Smethwick, Birmingham.
BOLTON, THOMAS & SONS, Broad-st. Metal Works, Birmingham.
CLIFFORD, C. & SON, Rolling Mills, Fazeley-st., Birmingham.
Elliott's Metal Company, Limited, Irwell-st., Liverpool; Selly Oak Works, Selly Oak; & 128, Colmore-row, Birmingham.
Ellis, C. & Sons, 28, Constitution-hill, B'ham.
EVERITT, ALLEN & SONS, Adderley-st., Birmingham.
Hall Street Metal Rolling Co. (J. Bisseker, manager), Hall-st. Works, Birmingham.
Heaton & Dugard, 77 to 80, Lower Loveday-st., Birmingham.
Heaton, Ralph & Son, Icknield-st. East, B'ham.
RATCLIFF, EDMUND, 59, St. Paul's-square, Birmingham.
Rollason, A., & Son, 2, Mary-st., Caroline-st., Birmingham.
Vivian, H. H. & Co., 46, George-st.-parade, Birmingham.
Walker, S., Lower Fazeley-st., Birmingham.
Wilson, Alfred E., 102B Gt. Charles-st., Birmingham. (Ingot.)

Braziers.

F.—Brazeurs.

G.—Kupferschmiede.

Arnold, James, 120½, Rupert-st., Birmingham.
Barton, B., 43, Cross Cheaping, Coventry.
Beckett Bros., 42 & 45, Harford-st., Birmingham.
Becks, Arthur Thomas, Chester-st., Dartmouth-st., Birmingham.
Beecroft, W., 43, Church-st., Attercliffe, Shffid.
Bradbury, Chas., 35, Cox-street west, Balsall Heath-road, Birmingham.
Chamberlain, Enoch, 14, Abbey-st., Birmingham
Collier, George, 112, Highgate-st., Birmingham.
Cooper, George, 88, Wicker, Sheffield.
Eastgate, Chas. John, 55, Tower-st., Birmingham
Griffiths, James, 65½, Emily-st., Birmingham.
Hopkins, Job, 20, Richard-st., Dartmouth-st., Birmingham.
Hookam, H. J. & Sons, 175, Charles Henry-st., Birmingham. *See index to advertisers.*
Lawson, Mrs. Bethia, 32, Division-st., & 10, Court, Carver-st., Sheffield.

Braziers—*continued.*

Lee, Charles, 16 & 19, Freeman-st., Moor-st., Birmingham.
Lloyd Bros., Chapel-works, High-st., Harborne, Birmingham.
Lloyd, Wm. Henry, High-st., Harborne, Birmingham.
Poole, Arthur James, 37, Dean-st., Birmingham.
Randle, W. & Co., 103 & 104, Lionel-st., Birmingham.
SMITH, MRS., S. C. W., 13, Seymour-st., Birmingham.
Sunderland, Martin, 278, High-st., Attercliffe, Sheffield.
Westwood, William, Icknield-square and 337, Monument-road, Birmingham.

Bronze Powder Makers.

F.—

G.—Messingstaub—Fabr.

Phillips, Sons & Entwisle, 81, Newhall-st., B'ham

Bronzists.

F.—Bronzeurs.

G.—Bronzisten.

Godley, Charles, 1, Leopold-st., Birmingham.
Sutcliffe, Isherwood, 27, Gt. Hampton-st., B'ham
White & Hawkins, 15 & 16, Legge-lane, & 95, Albion-st., Birmingham.

Cadium Merchants.

F.—Cadmium (Marchands de).

G.—Cadmium-Händler.

Wilson, Alfred E., 102B, Great Charles-st., B'ham

Carbon Manufacturers.

F.—Charbons électriques.

G.—Kohlenstoff-Händler.

Boland, W., 1, Caroline-st., Birmingham.
Electric Carbon, Storage, Apparatus Mfg. Co., of Scotland, Limited, Exchange-bldgs., Leith.
Walker, Sydney F., Black Boy-yard, Nottingham
Wilson, Alfred E., 102B., Gt. Charles-st., B'ham.

Charcoal Makers and Dealers.

F.—Charbon de bois.

G.—Meiler und Verkäufer von Holzkohlen.

Banks, James, Old Effingham Works, Neville-st., Rotherham.
Easton, William, Wellgate, Rotherham.
Fielding & Higginbottom, New Mills, Stockport.
Morris & Griffin, Wolverhampton.
Vaughan Bros., 180, Upwell-st., Grimesthorpe, Sheffield.

Digitized by Google

Chemical Appliance Manufacturers.

F.—Appareils de Chimie.
G.—Chemische Apparate.

Mawson & Swan, Mosley-st., Newcastle-on-Tyne.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*

Chemists—Analytical.

F.—Chimistes analytiques.
G.—Analytiker.

Bell, Henry Stowe, F.C.S., 46, High-st., Shffld.
Bettel, W., Mechanics Ins., Durhm-st., M'bro'.
Burghardt, Dr. Charles, A., F.I.C., 110, King-st., Manchester.
Cartnell, R., 4, Horninglow-st., Burton-on-Trent.
Edger, A. J. M., 13, Dean-st., Newcastle.
Gerland, B. W., 124, Buxton-road, Macclesfield.
Gore, Geo., LL.D., F.R.S., 67, Broad-st., B'ham.
HARRIS, PHILIP & CO., 9, Bull-ring, B'ham.
Hill, Alfred Bostock, M.D., F.I.C., 14, Temple-st., Birmingham.
Horn, William, P. 21A. Broad-st., The Oxford School of Chemistry, Birmingham.
Jones, E. W. T., F.I.C., F.C.S., 10, Victoria-st., Wolverhampton.
Lean, Louis, 12, Burngreave-road, Sheffield.
Lowe, Wm. F., Goss-st., Chester.
Pattinson & Stead, 5, Shetland-road, Middlesbro'.
Pattinson, John, 75, Side, Newcastle.
Penney, D. M., 15, High-st., Hull.
Proctor, William Wilson, 33 & 35, Side, and 5, Dean-st., Newcastle-on-Tyne.
Rice, R. S., 33, Wharf-st., Leicester.
SHARPLES, CHAS. H., F.C.S., A.S.T.E, & E. 7, Fishergate, Preston.
Smetham, Alfred, 18, Brunswick-st., Liverpool.
Tate, Alex. N., Heathfield, Columbia-place, Oxton, Birkenhead.

Chemists—Manufacturing and Metallurgical.

F.—Chimistes industriels et métallurgiques.
G.—Chemische Fabriken.

Adkins, Thomas & Co., Smethwick, Birmingham.
Adshead, W. P., Derby-house, Belper.
Aldred, Shirley (William Kirk, Manager), Norwood, Killamarsh, Chesterfield.
Alexander, T., 11, W. Nile-st., Glasgow.
Allen, J. & W., Wallsend, Newcastle.
Anderton, G. H., Howden Dyke, Howden.
Alum & Ammonia Co., Ld., 201, West-st., S.S., Glasgow.
Astle, W., Etruria-vale, Hanley, Stafford.
Austin, W. & Sons, 395, Nechells Park-rd., Birmingham.
Balfour, J. L., Brownhills, Walsall.
Barbour, Oliver Ross, 3, Canning-st., Calton, Glasgow.
Barr, Wm. & Co. 11, Miller-st., Glasgow.
Barrow, F. A., 143, Wellington-st., Glasgow.

Chemists—Manufac. & Metal.—*continued.*

Basford Chemical Co., Basford.
Bell Bros., 630, Keppochhill-road, Glasgow.
Blaydon Chemical Co., 15, Grey-st., Newcastle.
Bowker, W., Lower Turn Lee, Glossop.
Bradley, F., Forest Side, Sutton-in-Ashfield.
Brash, Robt., jun., 81, Hamilton-st., Govan.
Brown, M. B., Cortyne Chemical Works, Parkhead, Glasgow.
Bueler, Hodson & Co., 56, College-st., City Glasgow.
Cameron & Campbell, 106, New-rd., Parkhead, Glasgow.
Campbell & Co., 47, Cochrane-st., Glasgow.
Canadian Copper & Sulphur Co., Ld., 128, Hope-st., Glasgow.
Carlyle, W. A., 91 & 92, Constitution-hill, Birmingham. Cyanide of Potassium & Nickle Salts.
Carville Chemical Co., Ld., 42, Mosley-st., Newcastle.
Chadwick, H. & Co., 83, West-st., Tradeston, Glasgow.
Chambers & Co., T. F., 51, High-st., Hull.
Chance Bros., Dartmouth-st., Birmingham.
Chapman, J. T. 168, Deansgate, Manchester. Protographic purposes.
Chapelside Chemical Co., 53, Candleriggs and Chapelside, Maryhill, Glasgow.
Chapman, Gavin & Co., 143, North Wallace-st., Glasgow.
Chestergate Chemical Works, Chestergate, Stockport.
Clark, Allan, 54, Gordon-st., Glasgow.
Clark, Nettleships & Bailey, 15, Belvoir-st., Leicester.
Clyde Chemical Co., 81, Hamilton-st., Govan.
Clyde Chemical Works, Old Keppochhill-road, Glasgow.
Coghill, H. & Son, Porthill, Longport, Stoke-on Trent.
Cook, John, 44, Dean-st., Newcastle.
Cooper & Smith, Catherine-st., Lichfield-road, Birmingham.
Cooper & Son, 1A, Charles-st., Leicester.
Cowan & Laird, 41, Candleriggs, Glasgow, and & 231, Govan-road, Govan.
Cowlairs Chemical Co., Cowlairs, Glasgow.
Craig & Rose, 110, Wellington-st., Glasgow.
Cross, Alex. & Sons, 19, Hope-st., Glasgow.
CRUICKSHANK, RICHARD, 121 & 123, Camden-st., Birmingham.
Davy, Humphrey & Son, Masbro'-street, Masbro', Rotherham.
Dean, J. & Co., Brickhouse-lane, Gt. Bridge, West Bromwich.
Downie & M'Clute, 83, Pitt-st., Glasgow.
Eglington Chemical Co., Limited, 31, St. Vincent-place, Glasgow.
Erin Mineral Water Company of Belfast, 84, Norfolk-st., Glasgow.
Felting, Coal, Iron & Chemical Co., Limited, Royal Insurance-buildings, Newcastle.
Fielding & Higginbottom, New Mills, Stockport.
Findlay, J. & Co., 113, Virginia-place, Glasgow.

Digitized by Google

Chemists—Manufac. & Metal.—*continued.*

Frew, John & Co., 120, Mid Wharf, Port Madras, Glasgow.
Fullerton, Cooper & Co., Rewcastle-chase, Quayside, Newcastle.
Galen Chemical Co., Ettingshall, Wolverhampton.
Orwin, Wilson J. & Co., 29, Quayside, N'castle.
Galloway & Co., Victoria Chemical wks., Pollokshaws, Glasgow.
Galloway, H. & M., 4, West Regent-st., Glasgow
Garroway, R. & J., 58, Buchanan-st., Glasgow.
Gartley, John B., 22, Springfield-ct., Glasgow.
Gibson & Mathie, 49, Brown-st., Glasgow.
Globe Co., Commercial-road, Glasgow.
Gown, Jas., 84, Roslea-drive, Glasgow.
Gray, Andrew & Co., 464, Govan-st., Glasgow.
Gray, R. & Co., 21, Greenhead-st., Glasgow.
Gray, James, 95, St. James-road, Glasgow.
Greenvale Chemical Co., Greenvale, Duke-st., Glasgow.
Hannay, J. B., Annfield Chemical wks., Sword-st., Glasgow.
Hardman, J. M., Stoke-on-Trent.
HARRIS, PHILIP & Co., 9, Bull-ring, B'ham.
Harrison, G., Holderness-road, Hull.
Hart, G. W., Lowry's-wharf, Wilmington, Groves, Lime-st., Newland.
Hatch, J. & R., 83, Pitt-st., Glasgow.
Heath, Charles & Co., Ouseburn, Newcastle.
Hickling & Co., Banbury-st., Birmingham.
Hill, James, 288, Argyle-st., Glasgow.
Hinks, Thomas & Sons, 42, Little Green-lane, Small-heath, Birmingham.
Hitchcock, Thomas John, 145, Houston-st., Glasgow.
Holden & Co., Whitehouse, Erdington, B'ham.
Holliday, Read & Son (Wm. Walker, Manager), 188, West George-st., Glasgow.
Hope, Alex., jun. & Co., Coatbridge-st., Port Dundas, Glasgow.
Hunt, W. & Sons, Alkali works, Lea-brook, Tipton., Stafford.
Huntington Copper & Sulphur Co., Ld., 149, Hope-st., Glasgow.
Hurlet & Campsie Alum Co., 115, Wellington-st., Glasgow.
Hyde, J., High-st., Wednesfield.
Hyland, Thomas & Co., 65, Rose-st., S.S., Glasgow.
Irvine Chemical Co., Ld. (Geo. Breen Bomm, Manager & Secretary), 116, St. Vincent-st., Glasgow.
Jack, Joseph, North British Oil & Grease wks., Great Eastern-st., Glasgow.
Jarrow Chemical Co., Lombard-st., Newcastle.
Jarrow Hill Chemical Co., Lombard-st., Newcastle.
Jobling, James, 11, Newgate-st., Newcastle.
Johnson, Matthey & Co., Leicester.
Jones, W. & Co., Fleet-rd., Middlesbro'.
Jutson, Henry & Sons, Liverpool-st., B'ham.
Kean, John L., Port Dundas, Glasgow.
Kelvin Chemical Co., Craighall works, Maryhill.
Kilner T., Totley, Dore, Sheffield.

Chemists—Manufac. & Metal.—*continued.*

Kirk, W., Killamarsh, Chesterfield.
Lawley, James, Regent-place, Birmingham.
Litchfield, J., 50, High-st., Longton, Stafford.
Major, J. C., Monmore-green, Wolverhampton.
Matthews, Son & Co., Eastgate, Great Driffield.
Mawson & Swan, 13 & 15, Mosley-street, Newcastle.
McBean, H. & Co., 56, Cook-st., Glasgow.
McConechy, R. & Co., 64, St. Vincent-st., Glasgow.
McFarlane, George, 25, Wellington-street, Glasgow.
M'Geachy & M'Farlane, 80 & 82, Port Dundas-road, Glasgow.
M'Intosh & Co., 48, Dundas-st., City Glasgow.
M'Kechnie, Wm., 10½, N. Albion-st., Glasgow.
M'Lellan, D. G., Craig-st., east end of Duke-st., Glasgow.
M'Leod, F. H., 6, Main-st., Anders., Glasgow.
Meggitt, S. & Sons, Sutton-in-Ashfield.
Miller, G. & Co., 4, West Nile-st., Glasgow.
Milton Chemical Co., 22, Dundas-st., Glasgow.
Monkton Manure Co., 4, Queen-st., Newcastle.
Montgomery, J. & Co., 18, Bishop-st., Port Dundas.
Morris Bros., Misterton, Gainsboro'.
Morris & Griffin, Ceres works, Cannock-road, Wolverhampton.
Mycock, John Henry, 53, College-rd., Masbro', Rotherham.
Murray & Adam, 279 & 281, North Woodside-rd., Glasgow.
Napier, James & Co., Vinegar-hill, Camlache, Glasgow.
Newcastle Chemical works, Ld., 4, Quayside, Newcastle.
Newham, Benjamin & Co., Castle-hill, Sheffield.
Nicoll, David F., 139, Bothwell-st., Glasgow.
Nobel's Explosive Co., 149, West George-st., Glasgow.
North British Chemical Co., Ld., 149, Hope-st., Glasgow.
Papineau Rossall, 523 Attercliffe Common, Sheffield.
Paterson Bros., 250, Buchanan-st., Glasgow.
Paterson, H. W. & Co., 19 Wellington-st., Glasgow.
Paterson M'Kinnon, & Co., Clyde Chemical Works, 175, West George-st., Glasgow.
Paterson Montgomery, Whitevale Chemical Works, 69, Bath-st., Glasgow.
Paterson, Wm. & M., 69, Bath-st., Glasgow.
Peyton and Son, 20, Oxygen-st., and Lister-st., Birmingham.
Phillip, P. and Co., 57, Norfolk-st. Glasgow.
Pontifex and Wood, 33, Hope-st, Glasgow.
Poynter, John & Son, 8, Prince's-sq., Glasgow.
Pringle & Alexander, 18, St. Enoch-square, Glasgow.
Priory Chemical Company, Limited, 37, Napier-shall-st., Glasgow.
Reade Bros. & Co., Victoria-st. Works, Monmore-green, Wolverhampton.
Readman, J. B., 79, West Regent-street, Glasgow.

Digitized by Google

Chemists—Manufac. & Metal.—*continued.*

Redfern, Jos., 67 West Nile-street, Glasgow.
Richardson, J. & Co., Friar-lane, Leicester.
Ridley, Thos., Burn Bank, Quayside, Newcastle.
Ridyard, W., Oxford-st., Bilston, Stafford.
Roberts, Dale & Co., St. James'-st., Latchford, Warrington.
Robertson, Chas. S. Westmuir, Parkhead, Glasgow.
Robinson & Campbell, Ruchill-bridge, Maryhill, Glasgow.
Robinson, N. E., & Co., 13, Milestone-lane, Leicester.
Sadler, T. A., Cleveland Chemical Works, Middlesbro'.
Sellars, J. C., 4, Ferry-buildings, Chester-st., Birkenhead.
Seville Sulphur and Copper Co., Limited, 149, W. George-st., Glasgow.
Sharon Chemical Co., Little Chester, Derby.
Sheffield Chemical Co., Don Vitriol Works, Washford-road, Attercliffe, Sheffield.
Shorthouse, J. & Sons, 65, Shadwell-st., B'ham.
Shufflebotham, Enoch & Co., Icknield Port-road, Birmingham.
Simpson, W., 21, West Nile-st., Glasgow.
Singleton, Joseph & Co., Eyre-st., Birmingham.
Smith, Geo., M.D., 112, Rentfield-st., Glasgow.
Smith, Richard, 114, West-st., S.S., Glasgow.
Spence, P. & Co., Cattles-gro., Nechells, B'ham.
Springbank Co., 25, Wellington-st., Glasgow.
Stevenson, Carlisle & Co., 23, West Nile-street, Glasgow.
Stuart, John, 120, Buchanan-st., Glasgow.
Sturge, John and Edmund, 18, Wheeley's-lane, Birmingham.
St. Rollox Chemic. Wks., 229, Castle-st., Glasgow.
Talbot, Andrew, 69, Victoria-road, Glasgow.
Tapton Chemical Works, Tapton, Chesterfield.
Tennant, Chas. and Co., St. Rollox, and 15, St. Vincent-st., Glasgow.
Tharsis Sulphur and Copper Co., Limited, 136, West George-st., Glasgow.
Townsend, J., 13, Crawford-st., Port Dundas, Glasgow.
Turnbull & Co., 37, West George-st., Glasgow.
Tunstall Bone & Chemical Manure Works, Tunstall-bridge, Tunstall, Stafford.
Uphall Oil Co., Limited, 130, West Nile-st., Glasgow.
Walker, G., & Son, 48, French-st., Glasgow.
Walker, Robert & Co., 205, Buchanan-st., Glasgow.
Warburton & Sons, Chemical Works, Worksop.
Ward, Wm., 71, New-st., West Bromwich.
Washington Chemical Co., 26, Grey-st., Newcastle.
Waverley Oil & Chemical Co. (The), 44, South Portland-st., Glasgow.
Western Chemical Company, 202, Broomielaw, Glasgow.
White, J. & J., 7, West George-st., Glasgow.
White, William Henry, Westmore, Long Benton, Newcastle.
Wilkinson, James & Son, Tinsley Park-road, Attercliffe, Sheffield.

Chemists—Manufac. & Metal.—*continued.*

Wilkinson, T., 24, Newgate-st., Newcastle.
Williamson, J. C. & Co., Exchange-buildings, Quayside, Newcastle.
Williamson, J. H., Golden-hill, Stoke-on-Trent.
Wilson, James Thompson, Spital, Berwick-on-Tweed.
Wilson, John & Sons, 29, Bath-st., Glasgow.
Winder, J. B., Eyre-st., Birmingham.
Workman, John & Son, 55, Duke-st., Glasgow.
Young's Paraffin Light & Mineral Oil Company, Limited, 7, West George-st., Glasgow.
Young & Strang, 128, Ingram-st., Glasgow.

Chronometer Makers.

F.—Chronomètres.
G.—Chronometer-Macher.

Aird & Thomson, 139, Buchanan-st., Glasgow.
Connell, Hugh, 29, Bridge-st., Glasgow.
Dobbie, Alexander, 24, Clyde-place, Glasgow.
Easton, Jas., 56, Buchanan-st., Glasgow.
Edward, G., & Sons, 92, Buchanan-st., Glasgow.
Hendrie, Alex., 83, Jamaica-st., Glasgow.
M'Gregor, D., & Co., 44 & 45, Clyde-place, Glasgow.
Mitchell, J. & W., 119, Buchanan-st., Glasgow.
Muirhead, Jas., & Son, 90, Buchanan-st., Glasgow.
Sewill, F., 126, Broomielaw, Glasgow.
Shaw, W. C., 56, Gordon-st., Glasgow.
Smith, W., 13, Sauchiehall-st., Glasgow.
Stirling, A., 39, Steven-st., Glasgow.
Whyte & Co., 144, Broomielaw, Glasgow.
Wood, Jas., 49, Renfield-st., Glasgow.
Young, Robert & Son, 59, Clyde-place, Glasgow.

Clutch Manufacturers.

F.—Griffes de transmission.
G.—

Bagshaw, J. & Sons, Batley, Yorkshire. Addyman's American Friction Clutch.
HALL, C. E., MEERSBROOK BANK, SHEFFIELD. RELIABLE FRICTION "CLUTCH" (HALL'S PATENT), SHAFTINGS, ETC.

Compass Adjusters in Iron Vessels.

F.—
G.—Justirer für Compasse in eisernen Schiffen.

Dobbie, Alex., 24 & 25, Clyde-place, Glasgow.
M'Gregor, D. & Co., 44 & 45, Clyde-place, Glasgow.
White, J. & Co., 144, Broomielaw, Glasgow.

Compass Makers.

F.—Boussoles (Fab. de).
G.—Compass-Macher.

Carlow, David, 54 & 56, Ropework-lane, Glasgow.
Castle & Pagan, Commercial-road, Hull.

Digitized by Google

Compass Makers—*continued.*

Davis, J. & Son, All Saints' Works, Derby.
Dobbie, Alex., 24 & 25, Clyde-place, Glasgow.
M'Gregor, D. & Co., 44 & 45, Clyde-place, Glasgow.
Sewill, F., 126, Broomielaw, Glasgow.
White, Jas., 241, Sauchiehall-st., Glasgow.
Whyte, J. & Co., 144, Broomielaw, Glasgow.

Composition Makers for preventing incrustation in Steam Boilers.

F.—Désincrustants.
G.—Composition zur Verhütung des Incrustirens der Dampkessel.

Broadhead, Job & Son, Globe Works, Penistone-road, Sheffield.
Cooper & Smith, Catherine-st., Litchfield-road, Birmingham.
Dawson, Joseph, 992, Belgrave-gate, Leicester.
Flowers, H., 31, Braunstone-gate, Leicester.
Glasgow Patent Felt Co., 7, Royal Bank-place, Glasgow.
Ingham, E. & W., 88, Queen-st., Oldham.
LITHOLINE CO., 11, Queen-st., Oldham.
Norton, W., 48, Colton-st., Rutland-st., Leicester.
Turner, Edwin Leonard, Palissy Soap, Grease, and Oil Works, Bernard-rd. Park, Sheffield.
Wright, J. R., 19, Edgar-rise, Peas Hill-road, Nottingham.

Copper Companies.

F.—Cuivre (Compagnies de).
G.—Kupfer-Compagnien.

Bampfylde Mining Co., Limited, Sagar's-buildngs, Brunswick-st., North Molton, Devon.
Belstone Copper Mining Co., Limited, Belstone, Oakhampton, Devon.
British and Foreign Copper Company, 28, King-street, Liverpool.
Brookwood Copper Mine, Buckfastleigh, Devon.
Broughton Copper Co., Ltd., Broughton Copper Works, Manchester; & 150, Hope-st., Glasgow.
Canadian Copper and Sulphur Co., Limited, 16, Bothwell-st., Glasgow.
Drake Walls Tin and Copper Mining Co., Calstock, Cornwall.
Drwsycoed Copper Mining Co., Limited, 2, Tuthill-terrace, Carnarvon.
Fursdon Great Consolidated Copper Mining Co., Limited, South Tawton, Okehampton, Devon.
Glasdir Copper Mining Co., Limited, Dolgelley, N. Wales.
Harvey Hill Copper Co., Limited, 146, Buchanan-street, Glasgow.
Huntington Copper & Sulphur Co., Limited, 149, Hope-st., Glasgow.
Landore Copper Co., Landore, near Swansea.
Logan, E., Dock Copper Works, Birkenhead.
Mona Mine Co., Mona Mine, Almwch, Anglesey, N. Wales.

Copper Companies—*continued.*

Morfa du Mining Co., Amlwch, Anglesey, N. Wales.
Muntz's Metal Co., Limited, 9, Red Cross-st., Liverpool.
Pary's Mine Co., Pary's Mine, Amlwch, Anglesey, N. Wales.
Seville Sulphur & Copper Company, Limited, 149, West George-street, Glasgow; & 41, Old Hall-st., Liverpool.
South Roskear Tin & Copper Mining Co., Camborne, Cornwall.
Tharsis Sulphur and Copper Co., Limited, Cardiff Works, East Moors, Cardiff; & 136, West George-st., Glasgow.
Wheal Emma Tin and Copper Mine, Buckfastleigh, Devon.

Copper Merchants.

F.—Cuivre (Marchands de).
G.—Kupfer-Händler.

Abbott, John & Co., Ltd., Park Works, Gateshead.
Alexander, E. & Sons, 43, West Campbell-st., Glasgow.
Anderson, R. & Co., Jane-st., Leith.
Angus, G. & Co., Grainger-st., Newcastle-on-Tyne.
Ash & Lacy, 40, Meriden-st., Birmingham.
Banks & Stewart, 30, Hope-st., Glasgow.
BARWELL, JOHN & SONS, 28, Pickford-st., Birmingham.
Bede Metal & Chemical Co., Limited, Hebburn, Durham.
Bell, R. H., 50, King-st., South Shields.
Bibbey, Jno. Sons & Co., 83, Moseley-st., Manchester.
Bolton, T. & Sons, Oakamoor, Cheadle, Staffordshire.
Bories, Craig & Co., Lombard-st., Newcastle-on-Tyne.
Bourne, W., 6, John Dalton-st., Manchester.
Branson, J. H., 25, Change-alley, Sheffield.
Broughton Copper Co., Ltd., 150, Hope-st., Glasgow; & Broughton Copper Works, Manchester.
Brown, T. & Co., 8, Thornton-road, Bradford; and 19, Call-lane, Leeds.
Buckley, J., Store-st., London-rd., Manchester.
Bell, Richd. H., 50, King-st., South Shields.
Butterworth, MacArthur & Co., Marsh-st., Bristol.
Caine, W. S. & N., Dutton-street, Liverpool.
Carpenter & Co., High-street, Old Brentford, Middlesex.
Carrick & Brockbank, 26, Pall Mall, Manchester.
Crawford Bros., 24, Side, Newcastle-on-Tyne.
Clark & Sons, Waterhouse-lane, Hull.
Crawley, Parsons & Son, 130, Colmore-row, Birmingham.
Dent, E., Kaye-st., Heckmondwike, Yorks.
Dodds Brothers & Co., Victoria-Chambers, Close, Newcastle-on-Tyne.
Edwards, S. A. & Co., 38, Edmund-st., B'ham.
Fraser, J., 23B, George-st., Edinburgh.
Freeman, G. F. & Co., 21, Cooper-st., M'chester.

Digitized by Google

Copper Merchants—*continued.*

Gardner, M. H. & Co., 7, Commercial-buildings, Side, Newcastle-on-Tyne.
Gill & White, 13, Moseley-st., Newcastle-on-Tyne.
Glegg & Thomson, 177, George-st., Aberdeen.
Grey & Buchanan, 7, Princes-square, Glasgow.
Grenfell, Pascoe & Sons, 14, Nova Scotia, Liverpool; & Middle & Upper Bank Copper Works, Swansea.
Grieve & Gillepsie, 81, Ormond-street, Jarrow, Durham; & 1, Bedford-st., North Shields.
Hammond & Co., Middlesbrough.
Harborn, T., Dispensary-lane, Low Friar-street, Newcastle-on-Tyne.
Henderson, C. & Co., 9, York-st., Glasgow.
Hendry Brothers, 79, Great Clyde-st., Glasgow.
Hepton, W. & Son, Hunslet-lane, Leeds.
Heslop & Wilson, Exchange-buildings, Lombard-st., Newcastle.
Higgin, Lloyd & Co., Little Peter-st., M'chester.
Hoare, R., Sutton Wharf, Plymouth.
Inglis, J. T., 33, Dock-st., Dundee.
Johnson, R., Clapham & Morris, 23, Cheapside, Dale-st., Liverpool; & 24, Lever-st., Manchester.
Kidston, A. G. & Co., 81, Gt. Clyde-st., Glasgow; & 48, Rue End-st., Greenock.
Lambert, C. & Co., 37, Brook-st., Liverpool, & Port Tennant Copper Works, Swansea.
Leigh & Sillavan, 64, Deansgate, Manchester; & King-st., Wigan.
Leisham & Welsh, 4, Vulcan-st., Liverpool.
Logan, Edward, Birkenhead Dock Works, Beaufort-road, Birkenhead.
Lunsdon, Byers & Co., 51, West Sunniside, Sunderland.
Mason & Elkington, Cwm Coppel and Pool Collieries, Bury Port.
McEvan, W., 17, St. Vincent-lane, Glasgow.
McLean, H., 41, Oldhall-st., Liverpool.
Menzies & Blagburn, Exchange-buildings, King-st., Newcastle-on-Tyne.
Newton, Keates & Co., Broad-st., Birmingham; Greenfield, Holywell, North Wales; 4, Pump-st., Manchester; 4, Queen-st., Newcastle; & 28, King-st., Liverpool.
Nevill, Druce & Co., Llanelly, South Wales; & Princes-st., Truro, Cornwall.
Ogle, Richard, 4, St. Ann's-square, Manchester.
Pollock & Brown, Union Wharf, Southampton.
Rayne & Burn, 20, Broad-chare, Newcastle-on-Tyne.
Richardson Brothers, 2, Queen-st., Newcastle-on-Tyne.
Richardson & Co., Copper Ore Wharves, Swansea.
Roberts, J. & Son, 30, East-st., Leeds.
Robertson Brothers, 32, Timber-bush, Leith.
Rogers, H. Sons & Co., 39A, New-st., Birmingham; 20, St. Vincent-pl., Glasgow; 8, Bath-st., Liverpool; & Union-st., Horseley Fields, Wolverhampton.
Savary, Young & Co., 3, Lombard-st., Newcastle-on-Tyne.
Scott Brothers, Queen-st., Newcastle-on-Tyne.

Copper Merchants—*continued.*

Scott, James Douglas, Exchange-buildings, Lombard-st., Newcastle.
Simey, C. R., 55, Fawcett-st., Sunderland.
Simpson & Sons, Walkers-chambers, Humber-st., Hull.
Simpson, C. & Sons, 16, Park-row, Leeds.
Smith, G. & Co., 10, Carrick-st., Glasgow.
Smith, W., 39, Close, Newcastle-on-Tyne.
Stone, J. & Co., 29, St. Vincent-place, Glasgow.
Sudgen, W., 27, Guilford-st., Leeds.
Tharsis Sulphur & Copper Co., Limited, Eastmoor, Cardiff; Hebburn, Durham; 53, Renfield-st., Glasgow; Wellington-quay, Newcastle-on-Tyne.
Vivian & Sons, 46, George-st., Parade, Birmingham; 2, Cathcart-st., Greenock; 4, Crooked-lane, Liverpool; Royal Insurance-buildings, Newcastle; & 7, Trafalgar-row, Truro, Cornwall.
Webb, Aldridge & Co., Marsh-st., Bristol.
Williams, Foster & Co., 20, Canning-pl., L'pool; Morfa Works, Swansea; Mines, Royal Copper Works, Neath.
Winder & Harrop, Albion-st., Gaythorn, Manchester.
William & Mitchell, Middle-avenue, Queen-sq., Bristol.

Copper Smelters & Refiners.

F.—Cuivre (Fondeurs et Raffineurs de).
G.—Kupfergiessereien und Läuterer.

Baxter, Henry, 20, Easy-row, Birmingham.
Blackley, Young & Co., 103, Holm-st., Glasgow.
Bridger, Josh, Charles-st., Hebburn New Town, Newcastle-on-Tyne.
M'Crindell, Schaw & Co., 180, W. George-st., Glasgow.
St. Helen's Copper Co., Lim., (Vivian, Younger & Bond, agents), 3, Exchange-chmbrs., New-st., Birmingham.
Seville Sulphur & Copper Co., 149, W. George-st., Glasgow.
Tharsis Sulphur & Copper Co., Ld., 136, W. George-st., Glasgow.
Vivian & Sons, 46, George-st., Parade, B'ham.
Walker, T. W. & J., 21, West Nile-st., Glasgow.
Wilkes, John, Abberley-st., The Cape, B'ham.
Williams, William, Thistle-st., Hebburn New Town, Newcastle-on-Tyne.

Copper Smiths.

F.—Chaudronniers.
G.—Kupferschmiede.

Almond, Robt., 3, Bath-lane, Durham.
Anderson Bros., 93, Stockwell-st., Glasgow.
Anderson, James, 140, Stockwell-st., Glasgow.
Bailey, R., 74, James-st., Jarrow-on-Tyne.
Bainbridge, Wm., Middlegate-st., Hartlepool.

Digitized by Google

Copper Smiths—*continued.*

Baker, James, 1, Greenfield-cottages, Union-st., Egremont, Birkenhead.
Baron, T., & Son, 19 & 21, Mill-la., Macclesfield.
Bilson, Miss, Rose & Crown-yd., Corn Mkt., Derby.
Black, J. & Co., 58, St. James'-st., Paisley-road, Glasgow.
Blair, Campbell & McLean, Scotland-st., Gradeston.
Broadfoot, John & Sons, 55, Finnieston-st., Glasgow.
Campbell & Hattan, St. James'-st., Paisley-road, Glasgow.
Clark, A. & Sons, 27, Goosedubbs, Glasgow.
Clark, William & Sons, 100, John-st., Glasgow.
Clark, William, 6, Duncan-st., Glasgow.
Cleland & Thorburn, 107 & 109, Cheapside-st., Glasgow.
Clephan, W., 19, Lancefield-st., Glasgow.
Craggs, Thomas, Park-lane, Gateshead.
Crawford, Wm., 46, Muse-lane, Glasgow.
Drummond, Wm., 118, King-st., City, Glasgow.
Dunderdale, C., 119, St. Vincent-st., Glasgow.
Dunn, B., 41, King-st., Derby.
Errington, Thomas, Deptford & Bridge-end Foundries, Bishopwearmouth.
Fairlie, Wm., 18, Wood-lane, Glasgow.
Field, Henry, Son, & Co., 328, St. Vincent-st., Glasgow.
Fleming, Bennett & McLaren, Elliott-place, Cranstonhill, Glasgow.
Gilchrist, James, 14, Carlton-court, Bridge-street, Glasgow.
Glasgow Copper Works, 86 & 90, Dale-st., Glasgow.
Glasgow Iron & Brass Wire Co., 9, York-buildings, York-street, Glasgow.
Greig, John, 125, Low-st., Sunderland.
Hall, Geo., 35, Mill-lane, Macclesfield.
Hardy & Pattison, Commercial-st., Middleton, West Hartlepool.
Harvey, Wm. & Co., 220, Broomielaw, Glasgow.
Hamilton, Robt., 122, Main-st., Bridgeton, Glasgow.
Henderson, C. & Co., 9, York-buildings, York-st., Glasgow.
Henderson, William, & Co., Carpenter-st., South Shields.
Irwin & Campbell, 13, Norfolk-st., South side, Glasgow.
Jolley, James, 14, Bridge-st., Runcorn.
Jordan, Thos., Commercial-st., Knot Mill, Manchester.
Kapunda Copper Co., Limited, 21, West Nile-st., Glasgow.
Lambert, Chas., 43w, Campbell-st., Glasgow.
Lester, Wm., 58, Renfield-st., Glasgow.
Llewellins & James, 28, Bath-st., Glasgow.
Lowe, Chas. & Co., 158, Renfield-st., Glasgow.
Macbride & Co., 56, Wellington-st., Glasgow.
Mace, Edward, 1, Little Underbank, Stockport.
M'Haffie, James & Co., Calderwood-st., Parliamentary-road, Glasgow.
McSymon & Potter, 26, Clyde-place, Glasgow.
McVinnie, R., 69 & 71, McAlpine-st., Glasgow.
Meehan & Son, 118, Cheapside-st., Glasgow.

Copper Smiths—*continued.*

Menzies, D. P., 22, Hope-st., Glasgow.
Merryweather & Sons, 175, St. Vincent-st., Glasgow.
Murray, R. C., 3 to 19, Bridge-st., Carlton-ct., Glasgow.
Newton, Keates & Co., 38, Queen-st., Glasgow.
Peters, Stewart & Sons, 29, South Shamrock-st., Glasgow.
Primrose, E., 117, W. Campbell-st., Glasgow.
Primrose, T. & Son, 28, York-st, Glasgow.
Pyle, James, 86, Dale-street, S.S., Glasgow.
Ramsay, Alex., 22, Waterloo-st., Glasgow.
Reid & Kane, 43, Robertson-lane, Glasgow.
Saidler, James, 82, New Elvet, Durham.
Smillie, Samuel, 10, Havelock-st., Finnieston, Glasgow.
Stewart, C. R., 40, St. Enoch-square, Glasgow.
Stewart, D., 115, Main-st., Bridgeton, Glasgow.
Taylor, James, jun., 61, 63 & 65, Mitchell-st., Glasgow.
Turnbull, Stewart & Co., Vermont Works, Vermont-st., Glasgow.
Turner, J., 32, Marshouse-lane, Birmingham.
Vivian & Sons, 17, St. Vincent-lane, Glasgow.
Weir, John & Co., 105, Elliot-st., Glasgow.
Wilson, Henry & Co., Phœnix Works, Stockton-on-Tees.
Wood, Alex. & Son, 14 & 18, Stockwell-st., Glasgow.

Copperas Manufacturers.

F.—Couperose (Fab. de).

G.—Eisenvitriol.

Lawson, James Coldwell, 38, Quayside, Newcastle.
Lawson, J. C., South Hylton, Sunderland.

Core Serving Machinery Manufacturers.

F.—

G.—

BARRACLOUGH, T., & CO., LIMITED. Offices, 8, King-st.; Works, Whitley-st., Rochdale-road Manchester. *See index to advertisers.*

Cotton Waste Merchants.

F.—Déchets de Coton.

G.—Putzlappen-Händler.

Boardman Bros., Mill, Rochdale-rd., Manchester.
Cookson, J., 21, New Cannon-st., Manchester.
Findlay, J. & Co., 113, Virginia-place, Glasgow.
Fleming, Thos., Son and Co., West Grove Mill, Halifax.
Gilman, Joseph & Son, 140 & 148, Lancaster-st., & 76, Steelhouse-lane, Birmingham.
Rigby, Josiah, & Co., Neptune Works, Temple-st., Manchester.

Digitized by Google

Covered Wire Machine Manufacturers.

F.—
G.—Maschinen zur Herstellung von umsponnenem Draht.

GIMSON AND CO., VULCAN-STREET, LEICESTER.

Covered Wire Manufacturers.

F.—Fils isolés (Fab. de).
G.—Umsponnener Draht.

GLOVER, W. T., & CO., 25, Booth-st., Manchester. *See index to advertisers.*
Henley's, W. T., Telegraph Works Company, Limited, Woolwich.
RICKARD, W., Ashbourne-road Mills, Derby.

Crucible Manufacturers.

F.—Creusets (Fab. de).
G.—Schmelztiegel—Fabr.

Bagshaw, George & Son, Headford works, 42, Egerton-lane, & 50, Headford-st., Sheffield.
Brown, Robt. & Son, 16, St. Enoch-sq., Glasgow.
Clamp, William, 35, Aston-rd., Birmingham.
DOULTON, HENRY & CO., Granville-wharf, Granville-st., B'ham; 100, Soho, Liverpool; chief office, Lambeth pottery, London, S.E. Medals at numerous Exhibitions.
Falcke & Son, Bolingbroke-grdns, Battersea, S.W.
Firth, John, 63, Masbro'-st., Masbro', Rotherham
HADFIELD'S STEEL FOUNDRY CO., 168, Newhall-rd., Attercliffe, Sheffield.
HARPER & MOORES', 2, Crescent-wharf, Birmingham.
Horton, Joshua & Wm., Etna works, Smethwick, Birmingham.
Knowles, John & Co., (George Williams, agent), 35, Green-lane, Sheffield; works, Woodenbox, near Burton-on-Trent.
Lawrence & Co., Warren-st. & Tinsley-road, Sheffield.
Morgan Crucible Co. (The Patent Plumbago Crucible Co.), Battersea Works, Church-road, Battersea, S.W.
Owen, Henry, 41 Northwood-st., Birmingham.
Robe, Chas. & Son, Havelock-works, Walker-st., Sheffield.
Smith, G. & A., Bilboa-st., Glasgow.
Squires, George & Son, 127, Pritchett-st., B'ham.
Stewart, David & Co., 18, Buchanan-st., Glasgow.
Stiff, James & Sons, High-st., Lambeth, S.E.
WESTWOOD, CHARLES, 53, Great Hampton-st., Birmingham.
Wood, William C. & Sons, Lambhill-st., Plantation, Glasgow.

Designers.

F.—Inventeurs et Dessinateurs.
G.—Erfinder und Zeichner.

Allen, Edward Alfred, 41A, Constitution-hill, Birmingham.
Booth, James, 61, Orchard-st., Sheffield.
Bray, Nicholas, 13, Cheney-row, Sheffield.

Designers—*continued.*

Bushell, Charles, 103½, Vyse-st., Birmingham.
Crowther, George, 112, Newhall-st., Birmingham.
Cund Bros., Paternoster-row, Moor-st., Birmingham.
Hilton, Wm. Hy., 41, Great Hampton-st., Birmingham.
Illston, G. A., 8, Clifton-crescent, Rotherham.
Knowles, Thos., 136, Crookes, Sheffield.
Knowles, Thomas Adolph, 61, Orchard-st., corner of Fargate, Sheffield.
Leclere, Henri, 84, Norfolk-st., Sheffield.
Malan, Jean Antonio, 33½, Graham-street, Birmingham.
McKenzie, Gilles & Son, 2, Cadman-lane, Sheffield.
Newton, Edward Price, 21, Caroline-st., Birmingham.
Thompson, Albert H., 13, Minna-road, Sheffield.
Thorpe, Stuart, 15, Radcliff-road, Sharrow-vale, Sheffield.

Domestic Electricians.

F.—Electricité Domestique.
G.—Haus-Telegraphen.

SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*

Drain Pipe Manufacturers.

F.—Tuyaux en Poterie (Fab. de).
G.—Tonröhren-Fabriken.

Arnold & Arnold, Wilnecote Works, Wilnecote, Tamworth.
Bailey, Peter, Pringate Brick and Pipe Works, Stockport, Etchells, Manchester.
Barnett, E., Springfield Brick and Tile Works, Walsall.
Barry, William & Co., Woodville, Burton-on-Trent.
Bennett, Holmes & Kay, California Brick Works, Slockbrook-st., Derby.
Bennett & Leese, 49, Old Ulloxeter-road, Derby.
Best, Jas., Hill-top, Rochford, Tenbury.
Binnie, Jas., Gartcosh &, 69, Bath-st., Glasgow.
Bourne & Grove, The Bridge Steam Sawing Mills, Worcester.
Bradley, Thomas, Booth's Mill, Knutsford.
Cochrane & Co., Ormsby Iron Works, Middlesbrough.
Cooper, George, 195 and 197, Lawley-street, Birmingham.
Cowen, Josh & Co., Blaydonbarn, Blaydon.
Derrington & Sons, Dartmouth-st. & Heneage-st., Birmingham.
DOULTON, HENRY & CO., Granville-wharf, Granville-st., Birmingham; also Rowley Regis, Stafford; Chief Office, Lambeth Pottery, London, S.E.
Ensor, E., The Pool Works, Woodville, Burton-on-Trent.
Farnley Iron Company, Limited, 88, Prospect-st., Hull.
Glenboig Fire Clay Company, 68, Bath-street, Glasgow.

Digitized by Google

Drain Pipe Manufacturers—*continued.*

Harris & Pearson, Fire Clay and Brick Works, Stourbridge, Stafford.
Holt, J. H., Moss-lane, Altrincham, Cheshire.
Kent, P. J., Endon Edge Works, Endon, Stoke-on-Trent.
Norman, T., Old Quay Pottery, Runcorn.
North, R., Lays Works, Brockmoor, Brierley-Hill, Stafford.
Wilks, T., Up. Brailes, Shipston-on-Stour.
Wilson, W. & Sons, Amington, Tamworth.
Wragg, T. & Sons, Hill Top Fire Clay Works, Swadlincote, Burton-on-Trent.

Draining Tool Manufacturers.

F.—
G.—Werkzeug zum Gebrauch für Rohrleger.

Hunt, W. & Sons, Brades Iron Works, Oldbury.

Draughtsmen.

F.—Dessinateurs.
G.—Zeichner.

Allen, Edward, 10, Leaton-road, Higher Tranmere, Birkenhead.
Allport, J., 27, Ward-st., Masbro', Rotherham.
Backstraw, T., 45, Walkley-st., Walkley, Sheffield.
Bawden, Charles W., 22, Victoria-road, Higher Tranmere, Birkenhead.
Binney, Joseph, 40, Carlisle-st., Rotherham.
Bluck, Benjamin, 90, New-st., Birmingham.
Breckin, John, 8, Westfield-view, Westgate, Rotherham.
Bullmore, Wm. E., 65, Oxford-st., Sheffield.
Chadwick, John Wm., 100, Colmore-row, B'ham.
Clark, G., 10, Victoria-st., Masbro', Rotherham.
Collenette, Ralph, 98, Victoria-road, Heeley, Sheffield.
Cookson, William, 8, Rose-st., Birkenhead.
Hoodlass, J. R., 22, Wharncliffe-st., Rotherham.
Jamieson, Andrew, C.E., F.R.S.E., &c., *Principal*, College of Science and Art, Glasgow.
Kent, Alfred, 6, Catherine-st., Sheffield.
Kugler, Charles, 104, Woodhead-road, Sheffield.
Roffey, C., 95, Claughton-road, Birkenhead.
SMITH & COVENTRY, Gresley Ironworks, Ordsal-lane, Manchester.
Watt, John, 174, Cleveland-st., Birkenhead.

Driving Band Makers—Cotton.

F.—Courroies de Transmission—Coton.
G.—Maschinenriemen—Zeug.

Aitken, Thos. & Son, Helmshore, nr. Manchester.
Booth, J. & Sons, Charlesworth, Broadbottom.
Booth, G. & Sons, Charlesworth, Broadbottom.
Chadwick, W., New Mills, Stockport.
Hallowell, Robert, Palmerston-st., Bollington, Macclesfield.
Harrop, W., Mellor, Stockport.
Higginbottom, J., Charlesworth, Broadbottom.
Illingworth, David, Bridge-st., Stalybridge.

Driving Band Makers—Cotton—*continued.*

Jackson, L., Simmondley, Glossop.
Lyne & Son, Simmondley, Glossop.
Radcliffe, J. H., Kinder Lee Mills, Charlesworth, Broadbottom.
Reddaway, F. & Co., Cheltenham-st., Pendleton, Manchester. Camel-hair Belting.
Richardson & Son, Salem Mills, Stockport.
Rowbottom, F., Chew Wood Mill, Chisworth, Broadbottom.
Rowbottom, J., Holehouse Mills, Charlesworth, Broadbottom.
Rowbottom, Samuel, Meadow Mills, Glossop.
Sidebottom, George, Gee Cross, Manchester.
Stafford, T., Torr Top, New Mills, Stockport.
Wyall, W., New Mills, Stockport.

Driving Band Makers—India Rubber.

F.—Courroies de Transmission—Cuir.
G.—Maschinenriemen—Leder.

Birmingham India Rubber Co., New-st. and Charles Henry-st., Birmingham.
India Rubber, Gutta Percha & Telegraph Works Co., Limited, 20, Dixon-st., Glasgow.
North British Rubber Co., 13 & 15, Oswald-st., Glasgow.

Driving Band Makers—Leather.

F.—Courroies de Transmission—Cuir.
G.—Maschinenriemen—Leder.

Ashton, T. A., 36, 40, and 42, Norfolk-st., Sheffield. *See index to advertisers.*
Baird, Arch. & Son, 67, Robertson-st., Glasgow.
Blacklock, Goudie & Co., 69, Jamaica-st., Glasgow.
Binney & Son, 63, Broad-st., Birmingham.
Burt, J. & Co., Great Hamilton-st., Glasgow.
Christie Bros., 133, St. Vincent-st., Glasgow.
Colley, Francis & Son, 86, Market-place, Sheffield.
Donald, John & Son, 42, Cadogan-st., Glasgow.
Dumpster, Moore & Co., 49, Robertson-st., Glasgow.
Edgar, T., Corporation-st., 19, Mount-st., Walsall.
Faulkner, Alfred, 50, Moor-st., Birmingham.
Fenner, J. H. & C., Chapel-lane, Hull.
Fleming, Thos., Sons & Co., West Grove Mill, Halifax.
Fulton, W., 147, Stockwell-st., Glasgow.
Hull, J. F. & Co., 5, New Brown-st., Manchester.
Lancashire Patent Belting and Hose Co., Wire Works Mill, Strangeways, Manchester.
Leekie, Graham & Co., 116, 118 & 120, Union-st., Glasgow.
Lloyd, R. & Co., raw hide and other mill banding 135 & 136, Steelhouse-lane, Birmingham.
Macintosh Charles & Co., Cambridge-st., Manchester.
M'Intosh, Peter & Sons, 129, Stockwell-st., Glasgow.
Malloch, M'Dougal & Co., 90, Queen-st., Glasgow.

Digitized by Google

Driving Band Makers—Leather—*continued.*

Mapplebeck (Howard) & Co., 44, Bradford-st., Birmingham.
Mason Daniel & Sons, 141 & 142, Bath-row, Holloway head, Birmingham.
Merryweather & Sons, 175, St. Vincent-st., Glasgow.
Morton, J. & Sons, 48, London-st., Glasgow.
Muïrhead, Andrew & Co., 14, Brunswick-lane, Glasgow.
Oldfield, W., and Walton, 38, Charlotte-lane, Glasgow.
Ormerod, O. and W., Canal Leather Works, Rochdale.
Parsons, R., 116, Steelhouse-lane, Birmingham.
Patent Anhydrous (The) Leather Co., Portsmouth.
Phillips, Chas. D., Emlyn Works, Newport, Mon.
Richardson, E. and J., Elswick Leather Works, Elswick.
Staynes and Sons, 60 & 62, High-st., Leicester.
Steen, J. & Co., 1, High-st., Wolverhampton.
TASKER, SONS & CO., 32, Angel-st., Sheffield. (India Rubber and Leather.) *See index to advertisers.*
Thornton, Currie & Co., 43, 45 & 47, Jamaica-st., Glasgow.
Webb & Sons, Combs Tannery, Stowmarket.
White, John & Sons, Park Row Leather Works, Bingly, Yorkshire.
Whiteside, J. & Sons, 31, Moir-st., Glasgow.
Wilcock, Mark, Sowerby Bridge, Yorkshire.
Wilson, Duncan & Co., 93, James-st., Greenhead, Glasgow.

Dynamo and Magneto Electric Machine Manufacturers.

F.—Machines Dynamo et Magneto Electriques.
G.—Dynamo-Maschinen.

Bromfield, J. Coley, 49, Selborne-road, Hove, Sussex.
Carlyle, W. A., 91 & 92, Constitution-hill, B'ham.
CHADBURN & SON, 71, Lord-st., Liverpool.
Crompton, R. E., The Arc Works ("Bürgin") Chelmsford.
Emmerson, Murgatroyd & Co., Limited, Stockport.
ELECTRIC CARBON (THE) STORAGE AND APPARATUS MANUFACTURING COMPANY OF SCOTLAND, LIMITED, Exchange-buildings, Leith.
Sennett, A. R., Worthing, Sussex.
Walker, Sidney F. & Oliver, 195, Severn-road, Canton, Cardiff.

Earthenware Manufacturers.

F.—Tuyaux en Grès.
G.—Tonwaaren-Fabrikanten.

Adams, W. & T., Tunstall, Stafford.
Adderley, William A., Daisy Bank Works, Longton, Stafford.
Aidney, Griffiths & Co., High-st., Longton, Stafford.

Earthenware Manufacturers—*continued.*

Allerton, C. & Son, Park Works, High-st., Longton, Stafford.
Ashworth, George L., Bros., Broad-st., Hanley.
Aynsley, H. & Co., Chancery-lane, Longton, Stafford.
Baggaley J., Hill Works, Burslem, Stafford.
Baker & Co., Fenton Culvert, Stoke-on-Trent.
Bamford, J., Nelson-place, Hanley, Stafford.
Banks, N., Hill Top Potteries, Church Gresley, Burton-on-Trent.
Banks & Thorley, Boston Works, High-st., Hanley, Stafford.
Barker Bros., Gold-st., Longton, Stafford.
Barlow, T. W. & Son, Commerce-st., Longton, Stafford.
Barlow, C., Lower Mollart-st., Hanley, Stafford.
Bates & Bennett, Sneyd-st., Cobridge, Burslem.
Bates, Gilded & Walker, Dale Hall, Burslem.
Bednall & Heath, Tinker's Clough, Hanley.
Beech & Morgan, Waterloo Works, Hanley.
Beech, J., Swan Bank, Tunstall, Stafford.
Bennett, J., Wharf-lane, Hanley, Stafford.
Bettelley, J., Union-st., Hanley, Stafford.
Betteridge, T., Woodville, Burton-on-Trent.
Bevington, J., New-st., Hanley, Stafford.
Bevington, J., Broad-st., Hanley, Stafford.
Birks Bros., & Seddon, Waterloo-rd., Cobridge, Burslem, Stafford.
Blackhurst & Bourne, Hadderbridge Pottery, Burslem, Stafford.
Blackhurst, J., Sandyford, Tunstall, Stafford.
Bodley, E. F. & Co., Scotia Works, Burslem.
Booth, T. G., Church Bank Pottery, Burslem.
BOURNE & SONS, Denby Potteries, Denby, Derby.
Bridgwood & Son, East Vale, Longton, Stafford.
Broadhurst, J., Portland Pottery, Fenton Culvert, Stoke-on-Trent.
Brough & Blackhurst, Waterloo Works, Stafford-st., Longton, Stafford.
Brown, Westhead, Moore & Co., Cauldon-place, Stoke-on-Trent.
Brownfield, W. & Sons, Cobridge, Burslem.
Brownhills Pottery Co., Tunstall, Stoke-on-Trent.
Buckley, Wood & Co., High-st., Pottery, Burslem, Stafford.
Burgess & Leigh, Hill Pottery, Burslem, Stafford.
Burgess, H., Kiln Croft Works, Chapel-lane, Burslem, Stafford.
Carden, G. & Co., Mount Pleasant, Bilston.
Carder, G. & Sons, Leys Pottery, Brierly-hill.
Cartlidge, W. E., Villa Pottery, Cobridge, Burslem, Stafford.
Cartwright & Edwards, Trentham-rd., Longton, Stafford.
Clementson Bros., Phœnix & Bell Works, Broad-st., Hanley, Stafford.
Clive & Co., Well-st., Tunstall, Stoke-on-Trent.
Cooper & Dethick, Viaduct Works, Caroline-st., Longton.
Cooper & Moreton, Pyenett-st., Shelton, Hanley.
Copeland, W. T. & Sons, High-st., Stoke.
Corn, W. & E., Navigation-rd., Burslem, Stafford.

Digitized by Google

Earthenware Manufacturers—*continued.*

Cotton, E., Lichfield-st. Works, Hanley, Stafford.
Davenport, W. & Co., Longport, Burslem, Staff.
Davis, J. H., Trent Pottery, Kirkham-st., Hanley, Stafford.
Dawson, J., Stafford-st., Longton, Stafford.
Dudson, J., Hope-st. Works, Hanley, Stafford.
Dimmock, J. &. Co., Stafford-st., Hanley, Stafford.
Dunn, Bennett & Co., Boothen Works, Brook-st., Hanley.
Edge, Malkin & Co., Newport Works, Burslem, Stafford.
Edwards, J. & Son, Dale Hall Pottery, Burslem, Stafford.
Edwards, W., Russell st., Longton, Stafford.
Elsmore, T. & Son., Clay Hill Pottery, Tunstall, Stafford.
Emberton, T. J. & J., Highgate Pottery, Tunstall, Stoke-on-Trent.
Emery, F. J., Bleak Hall Works, Bleak-st., Burslem, Stafford.
Fell, Thomas & Co., Limited, St. Peter's Pottery, Newcastle.
Fielding & Co., Railway Pottery, Stoke-on-Trent.
Finney, J., Victoria Works, Longton, Stafford.
Ford & Challinor, Sandyford Pottery, Tunstall, Stoke-on-Trent.
Forrester, T., High-st., Longton, Stafford.
Furnival, T. & Son, Cobridge, Stoke-on-Trent.
Gaskell, J., Son & Co., Crown Works, Market-place, Burslem, Stafford.
Goode & Kenworthy, High-st., Tunstall, Stoke-on-Trent.
Green, Clark & Clay, Stafford-st., Longton, Stafford.
Guest, G., Soho Pottery, Tunstall, Stafford.
Grindley, W. H. & Co., Newfield Pottery, Tunstall, Stoke-on-Trent.
Grove & Stark, Palissy Works, Longton, Stafford.
Hall, Watkin & Co., Union-st., Hanley, Stafford.
Hammersley, R. M. & Co., High-st., Pottery, Tunstall, Stafford.
Hammersley, Ralph, High-st., Tunstall, Stafford.
Hancock, B. & S., Church-st., Stoke-on-Trent.
Hancock, S., 26 King-st., Derby.
Harrop, W. & Co., Dresden Works, Hanley, Stafford.
Hawley & Co., Foley, Fenton Culvert, Stoke-on-Trent.
Hawthorn, J., Abbey Pottery, Cobridge, Burslem, Stafford.
Hobson, C., Albert-st., Burslem, Stafford.
Holdcroft, W., George-st., Tunstall, Stafford.
Holland & Green, Stafford-st., Longton, Stafford.
Hollinshead & Kirkham, Woodland Pottery, Tunstall, Stafford.
Holmes, Plant & Madew, Sylvester Pottery, Burslem, Stafford.
Holmes, Stonier & Hollinshead, High-st., Hanley, Stafford.
Hope & Carter, Fountain-pl., Burslem, Stafford.
Hughes, T., Waterloo-rd., Burslem, Stafford.

Earthenware Manufacturers—*continued.*

Jones, E., Hill Top Pottery, Church Gresley, Burton-on-Trent.
Kent, J. & Son, 11, Market-pl., Longton, Staff.
Kent & Parr, Wellington-st., Burslem, Stafford.
Kirkham, W., London-rd., Stoke-on-Trent.
Knight, J., Stafford-st., Longton, Stafford.
Knowles & Son, New Brampton, Chesterfield.
Lear, S., High-st., Hanley, Stafford.
Lockett, J. & Co., King-st., Longton, Stafford.
Lowe, S., New Brampton, Chesterfield.
Lowe, W., High-st., Longton, Stafford.
Machin, W., Percy-st. Works, Hanley, Stafford.
Maddock & Co., Dale Hall Pottery, Burslem, Stafford.
Maddock, J. & Sons, Newcastle-st., Burslem, Stafford.
Malkin, R., Fenton Culvert, Stoke-on-Trent.
Martin, Robert, Ouseburn, Newcastle.
Mason & Aldcock, Waterloo Pottery, Swadlincote, Burton-on-Trent.
Meakin, A., Royal Albert Pottery, Parsonage-st., Tunstall, Stafford.
Meakin, J. & G., Eagle Pottery, Hanley, Staff.
Meakin, Charles, Eastwood, Hanley, Stoke-on-Trent.
Meese, T., Brettall-lane, Stourbridge, Stafford.
Meir, J. & Son, Greengate Potteries, Tunstall, Stafford.
Mellor, Taylor & Co., Bourne's Bank, Tunstall, Stafford.
Moore & Co., Old Foley Pottery, Longton, Staff.
Morley, W., Albion-st., Longton, Stafford.
Nadin, T., Woodville, Burton-on-Trent.
Oakley & Thacker, New-st., Longton, Stafford.
Old Hall Earthenware Co., Limited, Hill-st., Hanley, Stafford.
Oldfield, J., New Brampton, Chesterfield.
Ouslnam, W. E. & Sons, Furlong Works, Burslem, Stafford.
Pankhurst, J. W. & Co., Old Hall-st., Hanley, Stafford.
Pinder, Bourne & Co., Nile-st., Burslem, Staff.
Plant, J. junr., Brewery-st. Works, Hope-st., Hanley, Stafford.
Poole & Son, John-st., Stoke-on-Trent.
Powell, Bishop & Stonier, Stafford-st., Hanley.
Pratt, F. & R. & Co., Fenton Potteries, Fenton, Stoke-on-Trent.
Pratt & Simpson, Lane Delph Pottery, Park-st., Fenton Culvert, Stoke-on-Trent.
Procter, J., Heathcote Pottery, Heathcote-rd., Longton, Stafford.
Pugh & Glover, Pelham-st. Works, Pelham-st., Hanley, Stafford.
Reeves, J., Market-st., Fenton Culvert, Stoke.
Rigby, J., Milton, Stoke-on-Trent.
Ridgways, — Bedford Works, Hanley, Stafford.
Rowley, J. B., Woodville, Burton-on-Trent.
Sharpe Bros. & Co., Swadlincote, Burton.
Shaw, A., Mersey Works, Burslem, Stafford.
Simpson, T. A., Swan Works, Elm-st., Hanley.
Skinner & Walker, Stafford Pottery, South Stockton, Stockton-on-Tees.

Digitized by Google

Earthenware Manufacturers—*continued.*

Smith, Dooley & Co., Rawton Pottery, Woodville, Burton-on-Trent.
Steel, E., Cannon-st. Works, Hanley, Stafford.
Stubbs, W., Eastwood Pottery, Hanley, Staff.
Tams, J., Stafford-st., Longton, Stafford.
Taylor, Tunnicliff & Co., Eastwood, Hanley.
Till, Thomas & Sons, Liverpool-rd., Burslem.
Till & Gough, Common Side Pottery, Church Gresley, Burton-on-Trent.
Tinsley, G. & Co., Queen-st. Pottery, Burslem.
Turner, A. & Sons, Bradley Pottery, Bilston.
Turner, G. W. & Sons, Victoria Works, Tunstall, Stafford.
Turner & Rhodes, Stepney Lane, Hull.
Vernon, J. & G., Waterloo Works, Burslem.
Walker & Carter, Church-st., Stoke-on-Trent.
Walker, J., 31 High-st., Longton, Stafford.
Wallace & Co., Pottery-lane, Newcastle.
Watts & Tompkinson, High-st., Longton, Staff.
Wedgwood & Co., Pinnox & Unicorn Works, Tunstall, Stafford.
Wedgwood, J. & Sons, Etruria Pottery, Etruria, Stoke-on-Trent.
Whittingham, Ford & Riley, Newcastle-st., Burslem, Stafford.
Wileman, J. F., Foley Works, Fenton Culvert, Stoke-on-Trent.
Windle & Blyth, Birmingham-rd., Walsall, Staff.
Woodward, J., Swadlincote, Burton-on-Trent.
Wood & Son, Trent Pottery, Furlong-la., Burslem.
Worthington & Son, Bross-st., Hanley, Stafford.
Wright, E., Wheat Bridge Pottery, New Brampton, Chesterfield.
Young, R., Hull-bank, Cottingham, Hull.

Economic Gas Machine Manufacturers.

F.—Machine à gaz économique (Fab. de).
G.—Maschinen zur Selbsterzeugung von Gas.

Green, Edward & Son, 14, St. Ann's-square, Manchester.

Electric Alarms.

F.—Avertisseurs Electriques.
G.—Electrische Allarm-Apparate.

Davis, J. & Co., 51, Tyrrell st., Bradford.
Gent, J. T. & Co., King Richard's-rd., Leicester.
SHARPLES, G., 7 Fishergate, Preston. *See index to advertisers.*
Taylor, W. H. & F. H., 37, Shambles, Worcester.
Walker, Sidney F. & Oliver, 195, Severn-rd., Canton, Cardiff.

Electric Apparatus for Lighting Gas.

F.—Appareils électriques pour allumer le gaz.
G.—Electrische Gasanzünder.

SHARPLES, G., 7 Fishergate, Preston. *See index to advertisers.*

Electric Bell Apparatus—Contractors for Maintaining.

F.—Sonneries électriques (Entrepreneurs pour l'entretien de).
G.—Electrische Glocken—Contractoren.

Appleby & Stamps, 29, Graham-st., Birmingham.
Davis, J. & Son, All Saints Works, Derby.

Electric Bell Engineers.

F.—Sonneries électriques (Ingenieurs de)
G.—Electrische Glocken—Ingenieure.

TASKER, SONS & CO., New Station-road, Sheffield.

Electric Bell Fitters.

F.—Sonneries électriques (Poseurs de).
G.—Electrische Glocken-Einrichter.

Aird, J., Wellington Tube Works, Great Bridge, West Bromwich.
Allan, Peter, 46 & 50, High-st., Dumbarton.
Allen, William, 140 (back of) Lupin-st., B'ham.
Alder, Thos., 12, High-bridge, Newcastle.
Anderson Bros., 93, Stockwell-st., Glasgow.
Anderson, S. & Son, 66, Swanswell-st., Coventry.
Anderson, James, 140, Stockwell-st., Glasgow.
Anderson, John, 154, Bothwell-st., Glasgow.
Andrews, E., Claines, Worcester.
Anthony, J., Moseley-st., Ripley, Derby.
Anyon, J., 158, Wolverhampton-st., Dudley.
Armstrong, Wm., Stockport-rd., Altrincham.
Aston, Samuel, 25, Potter's-lane, Birmingham.
Atkins, M. H. T., 4, Victoria-st., High Fields. Coventry.
Austin, S., Swadlincote, Burton-on-Trent.
Bailey, H. & F., Church Gate, East Retford.
Bailey, J. & Sons, 28 & 29, Market-st., Tamworth, Stafford.
Bailey, T., 7, Princes-st., Wolverhampton.
Bainsley, R., Old Hill, Dudley.
Banbury, J., 24, Queen-st., Rutland-st., Leicester.
Banks, J., 16, Wednesfield-rd., Willenhall.
Belchel, J., Broadway, Worcester.
Bennett, J., Orchard-st., Kidderminster.
Bennett, W., 110, High-st., Burton-on-Trent.
Betson, R., Grove-st., East Retford.
Betts, G., Mansfield Woodhouse, Mansfield.
Bickley & Son, 84, Liverpool-rd., Newcastle.
Bissell, E. H., 37, Park-st., Leamington.
Blacklock, D. & Co., 82 & 84, Jamaica-st., Glasgow.
Blagg, T. H., 38, Little Underbank, Stockport.
Blake, A., 47, Ablewell-st., Walsall.
Bousfield, E., 30, Castle-gate, Newark.
Bradbury, John, George-st. West, Macclesfield.
Brannan, Wm., Commonhall-st., Chester.
Brewer, J., 2, Agard-st., Derby.
Britton & Sons, 17, Carlton-st., Nottingham.
Brown, George, 16, Harford-st., Birmingham.

Digitized by Google

Electric Bell Fitters—*continued.*

Brown, Joseph, 29, Henrietta-st., Birmingham.
Bryden, J. & Sons, 24, Renfield-st., Glasgow.
Buckler, W. J., 3, North-st., Rugby.
Caldwell, W. E., 15, South Sherwood-st., Nottingham.
Cameron, D., 142, North-st., Glasgow.
Cartwright, J., Whittington, Chesterfield.
Caverhill, Wm. Chas., 50, Bridge-st., Berwick-on-Tweed.
Chalmers & Toss, 197, Buchanan-st., Glasgow.
Collie, Robert, 8, Manor-st., Newcastle.
Cooper, John, 19, Bedford-st., Leicester.
Coulby, W., 12 & 14, Greyhound-st., Nottingham.
Cross, W., 17, Charles-st., Leicester.
Daglish, Robert, Bridge-st., Newcastle.
Davis, J. & Co., 51, Tyrrell-st., Bradford.
Davis, J. & Son, All Saints' Works, Derby.
Davis, B., 28A, Church-st., Longton.
Davis, J., 6, Bedford-st., Leamington.
Denny, Robert, 35, Oxford-st., Glasgow.
Dobney, T., Leicester-st., Melton, Mowbray.
Dudley, T., 5, Pinfold-st., Bilston.
Elliott, I. J. & Son, 16, Low Friar-st., Newcastle.
Everist, H., 7, Swan-st., Kidderminster.
Fardon, E., 4, Tavistock-st., Leamington.
Ferguson, Thomas, 122, Sauchiehall-st., Glasgow.
Field, H., Son & Co., 328, St. Vincent-st., Glasgow.
Fleming, P. & R. & Co., 29, Argyle-st., Glasgow.
Geeson & Henrick, High-st., Uppingham.
Gifford, W. J., Alfred-st., Ripley, Derby.
Glover & Sons, Dragon-yard, 85½, Upper Parliament-st., Nottingham.
Gough & Felgate, Uxbridge-st., Burton-on-Trent.
Graham, D. & G., 267, Sauchiehall-st., Glasgow.
Grubb, G. H., 41, Smith-st., Warwick.
Hallett, H. & F., 43, Snow-hill, Wolverhampton.
Harris, A., 172, Bristol-st., Birmingham.
Haslam, E., 3, St.-Helen's-st., Derby.
Hill, Edward, 111, Steelhouse-lane, Birmingham. Erector of Electric Bells.
Hollyoak, W. H., 3, Temple-st., Wolverhampton.
Homfray & Co., 9, York-st., Glasgow.
Hoskins & Redford, 34, Bridlesmith-gate, Nottingham.
Hunter, John, Westmoreland-st., Glasgow.
Ibberson & Stewart Bros., Upper Market-square, Hanley.
Jones, N., 21, Broad-st., Worcester.
Kendrick, Arthur, 29, Hurst-st., Birmingham.
Kennedy, Geo., 44, Barrack-st., Glasgow.
Kilby, W., 19, Wharf-st., Leicester.
Knowles, J., Walsall-st. works, Wednesbury.
Lea, Richard & Son, 12, High-st., Runcorn.
Leggot, Henry & Co., Market-st., Bradford.
Lewis & Co., 47, High-cross-st., Leicester.
Lingham Bros., 1, Harford-st., Birmingham.
Lyon, Wm., 158, Buchanan-st., Glasgow.
Mallam Bros., 8, Newport-st., Walsall.
Mather & Armstrong, 24, Dean-st., Newcastle.
Matthews, William Edwin, 69, Main-st., Sparkbrook, Birmingham.
McLellan, P. W., 127 & 129, Irongate, Glasgow.
Miller, T. J., 8 & 14, Sauchiehall-st., Glasgow.

Electric Bell Fitters—*continued.*

Mitchell, T. & Son, 24, Hurst-st., Birmingham.
Molyneux, John, Castle-st., Northwich.
Parker, John, 43, Ryland-st., & 27, Ryland-st. North, Birmingham.
PERRY, THOS., 58, Hockley-hill, Birmingham.
Raworth, W., Arkwright-st., Nottingham.
Rawson, T., Moseley-st., Ripley, Derby.
Reid, H. & Son, 39, Robertson-lane, Glasgow.
Revill, J., St. Mark's-lane, Newark.
Richardson, Wm., Lord-st., Runcorn.
Ridley, W., High-st., Market, Harborough.
Robbins, J. & Co., 56, Church-lane, Wolverhampton.
Roberts, D., 68, Whitefriars-lane, Coventry.
Scroop, S. & Sons, St. Mark's-st., Nottingham.
Selfe, D., 23, Bedford-st., Leamington.
Selkirk, Nichol, 10, Minerva-st., Glasgow.
Sexton, J., Saltergate, Chesterfield.
Smith, Chas. & Sons, 43, Temple-st., Birmingham.
Sparkes, W. & Son, Church-st., Gt. Malvern.
Talbut, John, Swan-buildings., Edmund-st., Birmingham.
Webb, Fred., 45, High-st., Leicester.
Webster, E., 96, Station-st., Burton-on-Trent.
Webster, E. A., 64, Lionel-st., Birmingham.
Whitehead, Wm. G. & Son, 15, College-st., Glasgow.
Widgery, Wm. J., 44, Sherlock-st., Birmingham.
Wilson, William, 435, Park-road, Hockley, Birmingham.
Yardley, Thos., 98, Hampton-st., Birmingham.
Zandra, Daniel, Heaviley, Stockport.

Electric Bell Manufacturers.

F.—Sonneries électriques (Fab. de).
G.—Electrische Glocken—Fabr.

Aldrews, W., Hunger-hill-road, Nottingham.
ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
Bailey, W. H. & Co., Essex-st., Salford, Manchester.
Bainbridge & Crimson, Oakwellgate, Gateshead.
Barrett & Leggott, Market-st., Bradford.
Baughan, H. W., Charlbury.
Beaumont & Dougill, 34, Gt. George-st., Leeds.
Blakey, Emmott & Co., Northern Telegraph Works, Halifax.
Blenheim & Sons, Englefield-green, Egham, Staines, Middlesex.
Bryden, J. & Sons, 16, Frederick-st., Edinburgh; Commercial-st., Dundee; 7, Princes-st., Perth; and 24, Renfield-st., Glasgow. *See index to advertisers.*
Butler, E., 36, Corn Exchange-chambers, Chester.
CHADBURN & SON, Liverpool.
Campbell, J. & Co., 20, Wheeldon-st., Sheffield.
CROMPTON WINFIELD (THE) ELECTRIC LIGHT ASSOCIATION, Cambridge-st. Works, Birmingham, & 49, Farringdon-st., London, E.C. *See index to advertisers.*

Digitized by Google

Electric Bell Manufacturers—*continued.*

CUTTING, R. C. & CO., 10, Exchange Arcade, Deansgate, Manchester.
Davis, J. & Co., 51, Tyrrell-street, Bradford.
Davis, J. & Son, All Saint Works, Derby.
Duke, A. H., 4, Hanover-st., Portsea, Hants.
Eaves, W., 24, St. Margaret's-green, Ipswich.
Edinburgh & Birmingham Brass Foundry Co. (The), 10, St. James'-square, Edinburgh.
Faulkner, J., 13, Gt. Ducie-st., Strangeways.
Gent, J. T. & Co., King Richard's-road, Leicester.
Graham, D. & G., 267, Sauchiehall, Glasgow.
Gent, J. T. & Co., Faraday Works, Leicester. *See index to advertisers.*
Hallewell, C., New Briggate, Leeds.
Harmer, C. & Son, 11, Lingfield-road, Wimbledon.
Hart, W. D., Short's Observatory, Edinburgh.
Henderson & Meek, 26, Forrest-road, Edinburgh.
King, F., Lawrence-hill, Bristol.
Legg, J., 18, Nelson-st., Swansea.
Mason Bros., 29, St. Vincent-place, Glasgow.
Mawson & Swan, 15, Moseley-st., Newcastle-on-Tyne. *See index to advertisers.*
Morris Bros., Hartington-buildings, Branston-st., Birmingham.
Nelson, Jas. & Sons, Leeds.
Peet, G., 13, Gt. George-st., Liverpool.
RADCLYFFE, A. H. W., 5, Cans-lane, High-st., Birmingham.
Sadler, M., 19, Aston-st., Birmingham.
Scott, Bros., 23, Crookston-st., Kingston, Glasgow.
Selfe, D., 23, Bedford-st., Leamington.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*
Tasker, Sons & Co., 32, Angel-st., Sheffield.
Taylor & Parsons, Bank-st., Piccehall-yard, Bradford.
Taylor, W. H. & F. H., 37, Shambles, Worcester.
Tolman, G., 33, Bell-st., Wolverhampton.
Tyack, W. J. & C., Church-st., Camborne, Cornwall.
Walker & Emley, 42, Westgate-road, Newcastle-on-Tyne.
Walker, Sidney F. & Oliver, 195, Severn-road, Canton, Cardiff.
Walker, S. F., Black Boy-yard, Nottingham.
Whitehead & Co., 54, St. Enoch-sq., Glasgow.

Electric Carbon Manufacturers.

F.—Charbons électriques (Fab. de).
G.—Electrische Kohlen—Fabr.

Electric Carbon (The) Storage & Apparatus Manufacturing Co. of Scotland, Limited, Exchange-buildings, Leith.

Electric Clocks.

F.—Horloges électriques.
G.—Electrische Uhren.

Edwards, G. & Sons, 92, Buchanan-st., Glasgow.
Mason Bros. & Co., 29, St. Vincent-place, Glasgow.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*

Electric Drawers Manufacturers.

F.—
G.—

Wright, P. & Sons, Broadwell-forge, Oldbury.

Electric Instrument Manufacturers.

F.—Appareils électriques.
G.—Electrische Instrumente.

Ash, Moses & Son, 4, Bull-st., Birmingham.
Blakey, Emmott & Co., Square-road, Halifax.
CARLYLE, W. A., 91 & 92, Constitution-hill, Birmingham.
Gent, J. T. & Co., Faraday Works, Leicester. *See index to advertisers.*
LANCASTER, JAS. & SON, 37, Colmore-row, Birmingham.
MORRIS BROS., Hartington-buildings, Branston-st., Birmingham.
Parkes, Jas. & Son, 5 & 6, St. Mary's-row, Birmingham.
Penning, J. R., Southsea Laboratory, electrician, engineer, and scientific instrument maker, 14, Norfolk-st., Southsea.
Sadler, Michael, 19, Aston-st., Birmingham.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*

Electric Lamp Manufacturers—Arc.

F.—Lampes électriques à Arc.
G.—Electrische Lampen—Arc.

ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
Bromfield, J. C., 49, Selborne-road, Hove, Sussex.
Chadburn & Son, Liverpool.
Electric Carbon (The) Storage & Apparatus Manufacturing Co. of Scotland, Limited, Exchange-buildings, Leith.
Lancaster, Jas. & Son, 37, Colmore-row, Birmingham.
Lever, Charles, Bowdon, Cheshire.
Sennett, A. R., Worthing, Sussex.
Walker, Sidney F. & Oliver, 195, Severn-road, Canton, Cardiff.

Electric Lamp Manufacturers—Incandescent.

F.—Lampes électriques à Incandescence.
G.—Electrische Lampen—Glühlicht.

ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
BURY, H., 46, Market-st., Manchester. Agent for the Swan Lamp, &c. *See index to advertisers.*
Electric Carbon (The) Storage & Apparatus Manufactory Co. of Scotland, Limited, Exchange-buildings, Leith.
LANCASTER, JAS. & SON, 37, Colmore-row, Birmingham.
Sennett, A. R., Worthing, Sussex.

Digitized by Google

Electric Light Apparatus Manufacturers.

F.—Eclairage électrique (Fab. d'Appareils d').
G.—Apparate für electrische Beleuchtung.

ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
Appleby & Stamps, 29, Graham-st., Birmingham.
BURY, H., 46, Market-st., Manchester. Maker of all Electric Light Machinery, etc. *See index to advertisers.*
CROMPTON WINFIELD ELECTRIC LIGHT ASSOCIATION (THE), Cambridge-st. Works, Birmingham; 49, Farringdon-st., London, E.C. *See index to advertisers.*
Crompton, R. E., Arc Works, Chelmsford. ("Crompton" Arc Lamp, "Bürgin" Dynamo Machine). *See index to advertisers.*
Electric Carbon (The) Storage & Apparatus Manufacturing Co. of Scotland, Limited, Exchange-buildings, Leith.
Sennett, A. R., Worthing, Sussex.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*
Swan's Electric Light Co., Limited (Swan's Incandescent Lamp), Newcastle-on-Tyne. *See index to advertisers.*

Electric Light Companies.

F.—Eclairage électrique (Compagnies d').
G.—Gesellschaften für electrische Beleuchtung.

Edison's Electric Light Co., 19, Victoria-buildings, Manchester. Telephone No. 532.
Electro Motive Force Co., Limited, 6, South Hanover-st., Glasgow.
Hammond & Co., Middlesborough.
National Electric Co., Limited, 6, South Hanover-st., Glasgow.
Northern Electric Light, Power & Appliances Co., Limited (The), 104, Commercial-st., Dundee.
PROTECTOR LAMP & LIGHTING CO., LIMITED (THE), Worseley, Manchester.
TEERNENS BROS. & CO., LIMITED, 6, St. Mary's-gate, Manchester. Agent, John S. Raworth.
Swan's Electric Light Co., Limited, 13, Mosley-st., Newcastle. *See index to advertisers.*
Tasker, Sons & Co., South Yorkshire & Derbyshire Electric Works, New Station-road, Sheffield.

Electric Light Contractors.

F.—Eclairage électrique (Entrepreneurs d').
G.—Electrisches Licht—Contractoren.

BURY, H., Manchester-chambers, 46, Market-st., Manchester. Of all approved systems, Swan & Arc are the best. *See index to advertisers.*
Crompton Winfield (The) Electric Light Association, Cambridge-st. Works, Birmingham, and 49, Farringdon-st., E.C. *See index to advertisers.*
Davis, J. & Son, All Saints' Works, Derby.

Electric Light Contractors—*continued.*

Electric Light & Storage Co., Commercial-road Works, Wolverhampton.
Hammond & Co., Middlesbrough.
Norman & Son, 217 to 223, Argyle-road, Glasgow.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*
Walker, Sidney F. & Oliver, 195, Severn-road, Canton, Cardiff.
Woodhouse & Rawson, 3, High-st., Belfast. *See index to advertisers.*

Electric Light Fittings Manufacturers and Fitters.

F.—Eclairage électrique (Fab. d'appareillage de Monteure et Monteurs).
G.—Electrisches Licht—Monteure und Verfertiger von Ausrüstungsgegenständen.

ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
Appleby & Stamps, 29, Graham-st., Birmingham.
BARWELL, SON & FISHER, Worcester Works, Clement-st., Birmingham.
CARLYLE, W. A., 91 & 92, Constitution-hill, Birmingham. *See index to advertisers.*
Crompton Winfield (The) Electric Light Association, Cambridge-st. Works, Birmingham, and 49, Farringdon-st., London, E.C. *See index to advertisers.*
RATCLIFF, EDMUND, 59, St. Paul's-square, Birmingham.

Electric Switch Manufacturers.

F.—Commutateurs (Fab. de).
G.—Electrische Weichen — Fabr.

Appleby & Stamps, 29, Graham-st., Birmingham.
Blakey, Emmott & Co., Northern Telegraph Works, Halifax.

Electric Transmission of Power.

F.—Transmission électrique de puissance.
G.—Gesellschaften für electrische Transmission der Kraft.

Walker, Sidney F. & Oliver, 195, Severn-road, Canton, Cardiff.

Electrical Sundries Manufacturers.

F.—Appareils divers électriques.
G.—Verfertiger von electrischen Artikeln.

ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
Campbell, J. & Co., 20, Wheeldon-st., Sheffield.
Electric Carbon, Storage and Apparatus Manufacturing Co. of Scotland, Limited, Leith.
HARRIS, PHILIP & CO., 9, Bull-ring, Birmingham.
Morris Bros., Hartington-buildings, Branston-st., Birmingham.

Digitized by Google

Elecrical Sundries Manfs.—*continued.*

MORRIS, TIMOTHY, 3 & 4, Market-st., Birmingham.
RADCLYFFE, A. H. W., 5, Cans-lane, High-st., Birmingham.

Electrical Water Level Apparatus Makers.

F.—
G.—

SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*

Electricians.

F.—Electriciens.
G.—Electricitätskundige.

BARRACLOUGH, T. & CO., 8, King-st. Manchester.
Butler, V., Lord-st., Liverpool.
CARLYLE, W. A., 91 & 92, Constitution-hill, Birmingham.
Cuttris, 83, New Briggate, Leeds.
Darwin, J. M., Brook-st., Longton, Stafford.
Davis & Co., 5, Tyrrell-st., Bradford.
Electric Light & Storage Co., Commercial-road Works, Wolverhampton.
Gent, J. T. & Co., King Richard's-rd., Leicester.
Harrison, Cox, Walker & Co., 4, High-row, Darlington.
JAMIESON, ANDREW, C.E., F.R.S.E., *Principal*, College of Science & Art, Glasgow.
Lavender, Jno., 11, Todd-st., Corporation-st., Manchester.
Lowden, Geo., Reform-st., Dundee.
Marr, Jno. Jackson, 31, Moorfields, Liverpool.
Nelson, Jas. & Sons, Leeds.
Norman & Son, 217 to 223, Argyle-rd., Glasgow.
Penning, J. R., Electrician, Engineer & Scientific Instrument Maker, Southsea Laboratory, 14, Norfolk-st., Southsea.
Redmond, D.D., M.D., Patentee & Inventor. Thermal Telephone, 1877; Differential Telephone; Method of Transmitting Luminous Images; Simple Rheocord, 1878, &c., 126, Sandford-road, Dublin.
Riddell, J. G., 18, King-st., Manchester.
Sennett, A. R., C.E., A.S.T.E., Worthing, Sussex.
SHARPLES, CHAS. H., F.C.S., A.S.T.E., & E., 7, Fishergate, Preston.
Sharples, G. 7, Fishergate, Preston. *See index to advertisers.*
TASKER, SONS & CO., New Station-st., Sheffield.
Vyle, S, 22, Borough-road, Middlesborough.
Walker, Sidney F. & Oliver, 195, Severn-road, Canton, Cardiff.

Electrolier Fitters.

F.—Electroliers (Poseurs d').
G.—Candalaber für electrische Lampen—Einrichter.

ARCULUS, ALF., 295, Broad-st., Birmingham.
Auld, Samuel & Co., 240, Gallowgate, Glasgow.

Electrolier Fitters—*continued.*

BARWELL, SON & FISHER, Worcester Works, Clement-st., Birmingham.
McLellan, P. & W., 127 & 129, Irongate, Glasgow.
SMITH & CHAMBERLAIN, 3, New Bartholomew-st., Birmingham.
Wilson, J. C. & Co., 99, Portugal-st., Glasgow.
WINFIELD, ROBERT WALTER & CO., Cambridge-st. Works, Birmingham, & Holborn-viaduct, London, E.C. *See index to advertisers.*

Electrolier Lamp, &c., Manufacturers.

F.—Electroliers (Fab. d')
G.—Candalaber für electrische Lampen—Fabr.

ALBION LAMP CO., Aston-road, Birmingham.
Anderson, F., 51, West Howard-st., Glasgow.
Anderson Bros., 93, Stockwell-st., Glasgow.
Anderton & Lester, 61, Spear-st., Manchester.
ARCULUS, ALFRED, 295, Broad-st., Birmingham.
Atkins Bros., 171 & 172, Hockley-hill, Birmingham.
Badger, John & Co., Stephenson-st., Stephenson-place, Birmingham.
Barnes & Co., 311, Broad-st., Birmingham. Side Brackets & Standards in Glass & Brass; also Globes for Electric Lighting.
BARWELL, SON & FISHER, Worcester Works, Clement-st., Birmingham.
Bent, J. & Son, 283, Bell Barn-road, Birmingham.
Best & Lloyd, Cambray Works, Handsworth, Birmingham.
Bird, Tremlett & Co., Ingleby-st. Works, Birmingham.
Bray, George & Co., Blackman-lane, Leeds.
Breeden (J. & W.) & Booth, 153, Cheapside, Birmingham.
Bradbury Bros., 32, Bishop-st., Birmingham.
Buchan, H., 50, Oswald-st., Glasgow.
Buchan, T. & Sons, 249, Argyle-st., Glasgow.
Bucknall, A., 19, Renshaw-st., Liverpool.
Burland, W. J., 329, Rochdale-road, Manchester.
BURT, G., 10, Gt. Charles-st., Birmingham.
Carpenter, Ford & Co., 22, Bishop-st. South, Birmingham.
Chambers, Samuel A., 112, Constitution-hill, Birmingham.
Clarke, C., 7 & 8, Washington-st., Birmingham,
Coleman, G. T., 9, Cheapside, Leicester.
Collie, Robert, 8, Manor-st., Newcastle.
Cooke, Joseph & Co., 203, Lawley-st., Birmingham.
Cooper, Wm. & Son, 123, Aston-road, Birmingham.
CROMPTON, WINFIELD (THE) ELECTRIC LIGHT ASSOCIATION, Cambridge-st. Works, Birmingham, & 49, Farringdon-st., E.C. Gold medal (Rappel) Paris Exhibition 1878. *See index to advertisers.*

Digitized by Google

Electrolier Lamp, &c., Manfs.—*continued.*

Davies, Clement & Co., 123 to 131, Bradford-st., Birmingham.
Davies, D. & S., Minories, Dudley.
Emery, W. & Co., Albion Brass Works, Arundel-st., Sheffield.
Evered, R. & Co., Limited, 263, Argyle-st., Glasgow.
Felton, T., Yates-street, Birmingham.
Fleay, J. M., 72, Cable-st., Liverpool.
Gumbley, Randolph G., 82 & 84, Moseley-st., Birmingham.
Harper, Henry, 58, Northwood-st., Birmingham.
Hart, Son, Peard & Co., Grosvenor-st. West, Birmingham.
Hillcoat & Allan, 27, Clarence-st., Glasgow.
HINKS, JAS. & SON, 91 to 96, Gt. Hampton-st., Birmingham.
Horton, Edward, 239, Bradford-st., Birmingham.
Hunt, J. & Co., Hope Works, Sampson-rd. North, Birmingham.
Hutchinson, Thos., 67, Grainger-st., Newcastle.
Ingram & Kemp, 85, Bradford-st., & 1, Lombard-st., Birmingham.
James, W., 201, Broad-st., Birmingham.
Johnston, Park & Co., 78, Gordon-st., Glasgow.
Jones & Barclay, 1 & 2, Crego-st., Birmingham.
Joyner, Charles & Co., manufacturers of chandeliers & gas fittings, Icknield-square, Birmingham.
Leech Bros. & Hoyle, 20, Old Millgate, Manchester.
Meek, James & Co., 13, Picardy-place, Edinburgh.
Menzies, D. P., 22, Hope-st., Glasgow.
Messenger & Sons, 19 & 20, Broad-st., Birmingham.
Moore, R., 60, Broomsgrove-st., Birmingham.
Osler, F. & C., 230 & 231, Broad-st. and Freeth-street, Birmingham; and at 45, Oxford-street, London, W.
Parker, T., 60, Cato-st., Birmingham.
Paterson, H. & Co., 19, Eglinton-st., Glasgow.
Patton, George, Neville-st., Newcastle.
Pilley, Wm. jun. & Co., 154, Upper Highgate-st., Birmingham.
Polkey, G., 235, Icknield-st. East, Birmingham.
Power, John H. & Co., 69 & 71 (37 & 38), Camden-st., Birmingham.
RATCLIFF, EDMUND, 59, St. Paul's-square, Birmingham.
Richardson & Hobson, 111, Pond-st., Sheffield.
Rowat, Alex. & Co., 25, Candleriggs, Glasgow.
Russell, John & Co., Limited, Belmont Works, New Spring-st., Birmingham. Lamps, Brackets & General Fittings; also manufacturers of Patent Steam, Gas & Water Tubes, Stocks, Dies, Taps, &c. G. M. Steam Cocks, &c. Alma Tube Works, Walsall, & the Old Patent Tube Works, Wednesbury.
SAMBRIDGE, W. H., 41 & 42, Lombard-st., Birmingham.
SMITH & CHAMBERLAIN, 3, New Bartholomew-st., Birmingham.
Taylor Bros., 232, Bradford-st., Birmingham.
Watt, Chas. & Co., 30, W. George-st., Glasgow.

Electrolier Lamp, &c., Manfs.—*continued.*

WHITEHOUSE & CO., 1, Carver-st. & Albion-st., Birmingham.
Whitmore, J., 40, Wellington-st., Leicester.
Willwins, W. & Sons, Deritend, Birmingham.
Wilkins & Wright, 58, Graham-st., Birmingham.
Wilson, William & Co., 50, 52 & 54, King-st., Manchester.
Winder & Harrop, Albion-st., Gaythorn, Manchester.
WINFIELD, ROBERT WALTER & CO., Cambridge-st. Works, Birmingham, & Holborn-viaduct, London, E.C. Gold Medal (Rappel), Paris Exhibition, 1878. *See index to advertisers.*
Winn, Charles & Co., 140, Granville-st., Birmingham.
Woolerton, T., 81, High-st., Leicester.
WRIGHT, HERBERT H., Hospital-st. Works, Birmingham.
Young & Co., 20, Vaughton-st. S., Birmingham.

Electro Motor Manufacturers.

F.—Electro Moteurs (Fab. d').
G.—Electrische Motors.

Cuttris, 83, New Briggate, Leeds.
Howe Machine Co., Limited (The)—"The Universal"—Avenue-st., Bridgeton, Glasgow.
Toynbee, Edward, 18, Malvern-villas, Willesden.
Walker, Sidney F. & Oliver, 195, Severn-road, Canton, Cardiff.

Electro Platers and Gilders.

F.—Doreurs et Galvanoplastes.
G.—Versilberer und Vergolder—Electrisch.

Adams, Edward Jas., 81A, Bull-st. Birmingham.
Adkins, H. & Sons, 12, Weaman-row, B'ham.
Ainsworth, Taylor & Co., 78, Ford-street, Hockley, Birmingham.
Alexander, W. & Son, 109, Buchanan-st., Glasgow.
Allan, F. & Son, Freeth-st.-corner, Icknield-square, Birmingham.
Allan, W. M. & Co., 184, Buchanan-st., Glasgow.
Allan, G., 39, Harford-st., Birmingham.
Almond Bros., 129, Stretford-road, Manchester.
Anderton, C., 43, Copper-st., Sheffield.
Appleton, D. & Co., 63, Sackville-st., Manchester.
Allen, Henry, 147, Park-lane, Birmingham.
Appleton & Horsfield, Sackville-st., Manchester.
Archer, G., 153, Gt. Hampton-row, B'ham.
Ashberry, P. & Sons, 21, Bowling-green-st., Sheffield.
Badger, John & Co., Stephenson-st., Stephenson-place, Birmingham.
Bagley, John & Co., 6½, Regent-parade, B'ham.
Bailey, Henry, 234, Great Colmore-st., B'ham.
Baker, Thomas, 58½, Great Hampton-st., B'ham.
Barker Bros., 42 & 43, Paradise-st., Birmingham.
Bates, Joseph, Temple-st., Wolverhampton.
Bayliss, W. & Co., Wednesbury-road, Walsall.
Beckett, C., St. Mary's-row, Walsall.

Digitized by Google

Electro Platers and Gilders—*continued.*

Benson, J. D., 64, Vyse-st., Birmingham.
Benton, Mrs. Harriet, 54, Barr-st., Birmingham.
Benson, William H., 13, Weaman-st., B'ham.
Birmingham Electro Plate Company (The), 73, Lionel-st., Birmingham.
Bloor, H. G., Orchard Works, Orchard-lane, Sheffield.
Bogle, Gilbert & Co., 47, Oswald-st., Glasgow.
Bolton, J. & Son, 64, George-st.-parade, B'ham.
Bond & Harris, 9, Parade, Birmingham.
Bourne & O'Neill, 18 & 19, Ludgate-hill, B'ham.
Bourne, John, 48, Newhall-hill, Birmingham.
Bowen, Geo. & Son, Victoria Works, 46, Augusta-st., Birmingham.
Bowes & Mincher, 18, Lower Rushall-st., Walsall.
Box, W. R. & Co., 105, Middle Abbey-st., Dublin.
Boyd, H., 114, Candleriggs, Glasgow.
Bridger, J. C., 7, Regent-parade, Birmingham.
Bridger & Leonard, 77, Caroline-st., Birmingham.
Brown, J. & Co., 3 & 4, Warstone-parade East, Birmingham.
Brown, E., 27, High-st., Winchester, Hants.
Browett, Alfred, 14, Dean-st., Birmingham.
Buckley, J., 32, Hockley-hill, Birmingham.
Bucknell, Wm., 25, Mount-st., Chapel-fields, Coventry.
Burgess, H., New Briggate, Leeds.
Burley, J., 44, Warstone-lane, Birmingham.
Burn, P., 26, Wicklow-st., Dublin.
Bushell, G. & J., 6½, Regent-parade, Birmingham.
Buss, J. R., 44, Victoria-st., Manchester.
Carnelly & Co., 2, Caroline-st., Birmingham.
Carnelly, Edward, 13, Hockley-st., Birmingham.
Carrington, Geo., 44, Arundel-lane, Sheffield.
Cartwright, C. & Sons, 13, Edgbaston-st., B'ham.
Chapman, T., 56, Buchanan-st, Glasgow.
Cheshire, C. H., 3, Northampton-st., B'ham.
Christie Bros., 133, St. Vincent-st. Glasgow.
Clark & Richardson, 14, Victoria-st., Birmingham.
Clarke, C., 7 & 8, Washington-st., Birmingham.
Clemmens, J., 45, Gt. Hampton-st., Birmingham.
Collignon & Hawkins, St. Mark's-st., B'ham.
Collingwood, H., 64, King Edward-road, B'ham.
Collis & Co., 57, Cambridge-st., Birmingham.
Cooper Bros., Don Plate Works, Bridge-st., Sheffield.
Cooper, C., 10, Northampton-st., Birmingham.
Cox, Walter Charles, 1, Caroline-st., Birmingham.
Crawford, T.. 296, Argyle-st., Glasgow.
Daffern, W., 61, Graham-st., Birmingham.
Darby, J., 109, Great Hampton-row, Birmingham.
Darby, William Edward, 109 & 110, Great Hampton-row, Birmingham.
Darling, Henry, 55, Arundel-st., Sheffield.
Davis, Joseph Mayers, Ruby-buildings, Fredk.-st., Birmingham.
Dearman, George, 64, Bath-st.; works, Court 2, Headford-st., Sheffield.
Derry, F., 31, Upper Hockley-st., Vyse-st., Birmingham.
Deykin & Sons, 3, Jennen's-row, Dale-end, Birmingham.
Dixon, Peter W., 75, Buchanan-st., Glasgow.

Electro Platers and Gilders—*continued.*

Doxey, J., 28, Burgess-st., Sheffield.
Dunderdale, C., 119, St. Vincent-st., Glasgow.
Dutton & Benton, 13, Norfolk-lane, Sheffield.
Edwards, G. & Sons, 92, Buchanan-st., Glasgow.
Eglington, F., 38, Park-st., Walsall.
Elkington & Co., Newhall-st., Birmingham.
Elkington & Co., 25, Church-st., Liverpool.
Elkington & Co., 18, Exchange-st., Manchester.
Ellis, C. & Co., 57, Norfolk-st., Sheffield.
Evans & Matthews, 80, Bull-st., Birmingham.
Evans, S. F., 56A, Great Hampton-st., B'ham.
Evans, T., Summit Works, Walsall.
Eve Bros., 39, Nicholas-st., Bristol.
Farrell, James, 30, Lower Essex-st., Birmingham.
Fearn, Thomas, 300, Camden-st.-parade, Birmingham.
Fenton, W. J., 29, Northampton-st., B'ham.
Field & Son, 12, High-street, High Wycombe, Bucks.
Field & Son, Market-square, Aylesbury.
Fielding, H., 18, Snape-st., Birmingham.
Fisher, Theodore, 85 (back of) Wynn-st., B'ham.
Fitter, J. R., 83, Caroline-st., Birmingham.
Fox & Biggins, 83, Arundel-st., Sheffield.
Francis, J., 1, Kingston-st. High Tranmere, Cheshire.
Freeman, George, 112, Newhall-st., Birmingham.
Fullarton, J., 75, Buchanan-st., Glasgow.
Furniss, A. E., 27, Carver-st., Sheffield.
Gallimore, William & Co., 19, Arundel-st, Sheffield.
Gartshore, W., 7, Argyle-st., Glasgow.
Gem, E. & Co., 27, Charlotte-st., Birmingham.
Gibbons, C., 13, Spencer-st., Birmingham.
Gibson, Edward, 79, Newhall-st., Birmingham.
Gilbert, J. & Co., 83 to 85, Ryland-st. North, Birmingham.
Gilbert, J., Sun Works, 61, Bissell-st., B'ham.
Gimson & Co., Vulcan-st., Leicester.
Godley, Charles, 1, Leopold-st., Birmingham.
Goodby, Albert Edwd., 102, New John-st. West, Birmingham.
Gough, J., 12, Parade, Birmingham.
Gray, Jas. Son & Co., 89, Renfield-st., Glasgow.
Gray, J. C., 51, High-st., Birmingham.
Grayson, Benj. & Son, British Works, Holly-st., Sheffield.
Greaves, H., 47, Chester-st., Sheffield.
Green, A. & Son, 10, Hylton-st., Birmingham.
Griffiths, John, 19½, Regent-place, Birmingham.
Groves, S., 69, Broad-st., Birmingham.
Hamilton, W., 28, Tarleton-st., Liverpool.
Hancocks, E. H., 38. Arundel-lane, Sheffield.
Hancock, J., 40½, Holly-street, Sheffield.
Hands & Son, 136, 137, & 138, Suffolk-st., B'ham.
Hardcastle, George, 1½, Augusta-st., B'ham.
Harlow, H., 54½, Great Hampton-st., B'ham.
Harper Bros., 87, Bridge-st., Manchester.
Harris, T., & Co., 52, Orchard-st., Sheffield.
Harrison, J. & Sons, 44, Bridge-st., Manchester.
Harrison, W. W., & Co., Pepper-alley, Fargate, Sheffield.
Hart, John, 44, Augusta-st., Birmingham.

Digitized by Google

Electro Platers and Gilders—*continued.*

Harwood, Son & Harrison, 185 & 187, Newhall-st., Birmingham.
Hattersley and Falding, Snider Works, 109, Napier-st., Sheffield.
Hawkins, Thomas, 9, St. Mark-st. West, Birmingham.
Heath Bros., 58½, Great Hampton-st., B'ham.
Heath, W. R., Vittoria-st., Birmingham.
Hemming, H., 20, George-st, Parade, B'ham.
Henry, J. T. (exors. of), Lincoln Electro Plate Works, Arundel-st., Sheffield.
Henson, Edmund A., 61½, Constitution-hill, Birmingham.
Hibberd, C., 14, Court, Carver-st., Sheffield.
Hilcox, S., 59½, Great Hampton-st., B'ham.
Hill, Thomas, 47, Norfolk-st., Sheffield.
HINTON, THOMAS, 48, Northwood-st., Birmingham.
Hirons, Plante & Co., 54, Frederick-st., Newhall-hill, Birmingham.
Hobday, William, 12, Kenion-st., Birmingham.
Holdsworth, H. & Son, 176, Bramall-lane, Sheffield.
Hollis, C., & Son, 3, Mary Ann-st., Birmingham.
Homer, James, 97, Sycamore-road, Aston, B'ham.
Hope, G., 13, Hylton-street, Birmingham.
Hopkins, Joseph, 23, Augusta-st., Birmingham.
Hukin & Heath, 139, Great Charles-st., B'ham.
Hunt, Reynolds & Co., Peel-st., Wolverhampton.
Hunt, James Henry, 3, Regent-parade, B'ham.
Huntley, Borne & Stevens, 128, London-st., Reading, Berks.
Ingram, John, 126, Suffolk-st., Birmingham.
Ireland, Arthur Geo., 83, Gt. Hampton-st., Birmingham.
Jarvis, George, 118, Brearly-st. West, B'ham.
Johnson & Co., Crown Works, Aston-road, Birmingham.
Johnson, G. W., Brownlow-hill, Liverpool.
Jones, H., & Co., 55, Gt. Hampton-st., B'ham.
Keeling, Mrs. Ann, 6, Richard-st., Hockley, Birmingham.
Kelly, Albert, 87½, New John-st., West, B'ham.
Kidd & Laing, Alfred-st., Warstone-lane, B'ham.
King, John, & Co., 286, Icknield-st., B'ham.
Knight Brothers, 12, Baker's-hill, Sheffield.
Knowles, F. C. & Co., 149A, South-st., Moor, Sheffield.
Knowles, G. J., 169, High-st., Winchester, Hants.
Krinks, S., 1, Alfred-st., Warstone-lane, B'ham.
Lamb, G., 234, Icknield-st. East, Birmingham.
Latham & Morton, 115 & 116, Vyse-st., B'ham.
Le Bas, S., 5, Fleet-st., Dublin.
Lee & Wigfull, John-st. Works, Highfield, Sheffield.
Lees, S., & Son, 108, Barr-st., Birmingham.
Lempriere, Geo. Philip, 77, Spencer-st., B'ham.
Lingard & Baker, 52, Gt. Hampton-st., B'ham.
Linegar, John, 63 & 64, Spencer-st., B'ham.
Llewellins & James, 28, Bath-st., Glasgow.
Lowe, George, 61, Graham-st., Birmingham.
Lyde, William Henry, 92, Newhall-st., B'ham.

Electro Platers and Gilders—*continued.*

Mackenzie, Henry, & Co., 263, Icknield-st., Birmingham.
Mallender, G., 70, Bowden-st., Sheffield.
Mallol, J., 176, Warstone-lane, Birmingham.
Mammatt, William, 121, Arundel-st., Sheffield.
Manton, Henry J., 108, 109 & 110 Great Charles-st., Birmingham.
Mappin & Webb, Norfolk-st., Sheffield.
Mappin Brothers, Baker's-hill, Sheffield.
Marrian Francis T., 14, Cannon-st, Birmingham.
Marsh & Co., 30, Lower Sackville-st., Dublin.
Marsh, T., 131, Great Hampton-st., B'ham.
Martin & Co., 2, Court, Orchard-st., Sheffield.
Massey, J., 331, Icknield-st. West, Birmingham.
Massey, John, 402, Monument-road, Birmingham.
M'Farlane, Peter & Sons, 10 & 11, Argyle-arcade, Glasgow.
McGregor, Mrs. J., 68, Hockley-hill, B'ham.
Meeson & Green, Orchard-lane, Sheffield.
Middleton, John, 9, George-st., Parade, B'ham.
Miller, John & Co., 153, Greendyke-st., Glasgow.
Mills, S. & Co., 42, Ryland-st., Broad-st., B'ham.
Mills, Thomas & Walter, 244, Icknield-st., and 9 & 11, Park-road, Hockley, Birmingham.
Millward, W., 36, St. Paul's-square, B'ham.
Mitchell, Albert Henry, 26, Warstone-lane, Birmingham.
Morton, H. & Co., 86, Bridge-st., Sheffield.
Morton, J. & Co., 78, Spencer-st., Birmingham.
Morton, George, 47, St. Paul's-square, B'ham.
Morton, H., 8, Court, Kenion-st., Birmingham.
Morton, J., 31, Nassau-st., Dublin.
Muggeridge, J., 15, Tower-st., Birmingham.
Muirhead, J. & Sons, 84, Buchanan-st., Glasgow.
Naylor, Wm. & Co., Caledonian Works, 14, Vittoria-st., Birmingham.
Newman & Co., 40, St. Paul's-sq., Birmingham.
Newton, Rupert E., 45, Northampton-st., Birmingham.
Oates, T., 67, Carver-st., Sheffield.
Orchard, J., 20, Upper Hospital-st., B'ham.
Otley, Thomas & Sons, Meadow Works, 33, New Meadow-st., Sheffield.
Owen & Bottomley, 17½, Figtree-lane, Sheffield.
Padley, W., & Son, 57, Burgess-st., Sheffield.
Parker, H. & Son, 10, Brook-st., St. Paul's, Birmingham.
Parker, Joseph & Sons, Alexandra Works, 58, Trinity-st., Sheffield.
Parker, W., 14, Grove-chambers, Withy-grove, Manchester.
Parkes, J., 97, Teddesley-st., Walsall.
Parkes, W., 28, Tower-st., Birmingham.
Partridge, Chas. Bollingbroke, 12, New Bond-st., Coventry-road, Birmingham.
Peet, G., 13, Gt. George-st., Liverpool.
Pembroke & Dingley, 43, Hall-st., Birmingham.
Pendleton & Merrill, 5, Holly-st., Sheffield.
Peters & Hughes, East Gate-st., Chester.
Pinder, J. & Co., 12, Carver-st., Sheffield.
Plating Co., Limited (The), 14, St. Mary's-row, Birmingham.
POOLE, J., 73, Northwood-st., Birmingham.

Digitized by Google

Electro Platers and Gilders—*continued.*

Poplar, W., 18, Wynn-st., Birmingham.
Potosi (The) Co., 20 & 21, Barr-st., Birmingham.
Price, C., 5, Hylton-st., Birmingham, electro plater & gilder & gold cutter. All kinds of silver frosting.
Prime, T. & Son, 18, Northwood-st., B'mgham.
Pursall, J., 109, Vyse-st., Birmingham.
Reading, J. & Sons, 6, Spencer-st., Birmingham.
Reading, N. C. & Co., 186 & 187, Warstone-lane, Birmingham.
Redfern, J., 5, Shawcross-fold, Millgate, Stockport.
Redmond, D. D., M.D., 126, Sandford-road, Dublin.
Rhodes, J. A., 53, Howard-st., Sheffield.
Richardson, R., Norfolk-st., Sheffield.
Richardson's Electro Plate Warehouse, 56, South Bridge, Edinburgh.
Roberts & Belk, 38, Furnival-st., Sheffield.
Roberts & Timm, 23, Orchard-lane, Sheffield.
Robertson, D. & T., 284 & 286, Sauchiehall-st., Glasgow.
Robinson, W., 5, Hockley-terrace, Icknield-st. East, Birmingham.
Rogers, J. & Sons, Limited, 6, Norfolk-court, Sheffield.
Rogers, Hy., 91, Balsall Heath-road, Moseley-road, Birmingham.
Roper & Edwards, 45, Augusta-st., Birmingham.
Rose & Co., 13, Augusta-st., Birmingham.
Round, Edwin & Son, Limited (Thos. Hy. Blake, sec.), Holly-st., Sheffield.
ROUND, B. J., 9, Northampton-st., B'ham.
Rutledge, R., 53, Buckingham-st., Birmingham.
Russell & Co., 47½, Gt. Hampton-st., B'ham.
Russell, Edward, 46, Northampton-st., B'ham.
Ryland, J., 30, Harford-st., Birmingham.
Ryland, John, 166, Gt. Hampton-row, B'ham.
Salaman, Frederick, 48, Warstone-lane, B'ham.
Sansum, D. H., Eagle Works, Tenby-st., B'ham.
Saville, H. & Son, 38, Tarleton-st., Liverpool.
Scragg & Co., 62, Tenby-st. North, Birmingham.
Scottish Plating Co., 106, Stirling-road, Glasgow.
Sheppard & Co., 28, Mary-st., Birmingham.
Sherwood & Son, Regent Works, Vittoria-st., Birmingham.
Simkiss, R., 10, Kenion-st., Birmingham.
Simpson, C. H., 13, Windsor-st., Brighton.
Smith & Cook, 26, Lionel-st., Birmingham.
Smith, T. & Son, 25, Queen-st., Glasgow.
Smith, C. W., 29, Wellington-quay, Dublin.
Smith, W., 63½, Gt. Hampton-st., Birmingham.
Smith, W. & F., 72, Northwood-st., B'ham.
Snell & Prideaux, Ernest-st., Holloway-head, Birmingham.
Spurrier, Walter & Co., 1, Hall-st., Birmingham.
Spurrier, Wm., Limited, 81, Colmore-row, Birmingham.
Squires, T., 79, Lower Rushall-st., Walsall.
Stacey, E. H., 116, Norfolk-st., Sheffield.
Steeley, Wm., 2, Mary Ann-st., Birmingham.
Stilwell & Sons, 76, Spencer-st., Birmingham.
Stocks, J., Orchard-lane, Sheffield.

Electro Platers and Gilders—*continued.*

Stratford, W. & H., 1, New Church-st., Sheffield.
Sturges, Bladon & Middleton, 14, Weaman-st., Birmingham.
Suter, Samuel, 56, Graham-st., Birmingham.
Swann, Wm., 3½, Regent-parade, Birmingham.
TANGYES, LIMITED, CORNWALL WORKS, SOHO, AND STEPHENSON'S - PLACE, BIRMINGHAM.
Taylor & Grove, 3, St. Mary's-row, Birmingham.
Taylor, Jas. jun., 61, 63 & 65, Mitchell-st., Glasgow.
Taunton & Johnson, 296, Broad-st., Birmingham.
Tay & Francis, Leopold-st., Birmingham.
Thompson, Wm. & Co., 79 (back of) Spencer-st., Birmingham.
Thompson, Jas., Soho-place, 99, Napier-st., Sheffield.
Travis, G. & Co., Bath-st., Sheffield.
Turner & Jepson, Cadman-lane, Norfolk-st., Sheffield.
Turner, J., 52, Orchard-st., Sheffield.
Tye, E., 18, Union-passage, Birmingham.
Tyler, W., 1, Brunswick-road, Sheffield.
Walker & Hall, 9, 11, 13 & 15, Howard-st., & 10 to 18, Eyre-st., Sheffield.
Walker, T. W. & J., 21, W. Nile-st., Glasgow.
Wall, John, 49½, Kenion-st., Birmingham.
Warris, Geo., School of Art Works, 32, Howard-st., Sheffield.
Waterhouse & Co., 25, Dame-st., Dublin.
Watson, Jos. Hy., 50, St. Paul's-square, B'ham.
Watson, T. H., 18, Bath-st., Birmingham.
Webb, Wm., 40, Howard-st., Birmingham.
Welch, W., 34½, Gt. Hampton-st., Birmingham.
Weller, W., 38, Bond-st., Brighton.
Wells, J. & T., 15, Gt. Hampton-st., B'ham.
Wells, T. & Co., 15½, Gt. Hampton-st., B'ham.
West of Scotland Electro Plate Co., 97, Bothwell-st., Glasgow.
WESTWOOD, C. & CO., 2 & 3, St. Paul's-square, Birmingham.
Westwood, J. F., 62, Gt. King-st., Birmingham.
Wheeler, G., 33, Harford-st., Birmingham.
Whitaker, Mrs., Middlebrook, Snaith, Selby, Yorks.
Whitcomb, T. & Son, 69, Northwood-st., Birmingham.
White & Hawkins, 15 & 16, Legge-lane, & 95, Albion-st., Birmingham.
White, Sons & Co., 5, Morrison's-court, Glasgow.
Whitehouse, G. & Co., 24, Exeter-row, B'ham.
Whitehouse, F., Lion Works, Warstone-lane, Birmingham.
Wilding, W., 72, Vyse-st., Birmingham.
Wildman, G. C., Penn Works, Raglan-st., Wolverhampton.
Wilkinson, H. & Co., Limited, 20, Norfolk-st., Sheffield.
Wilkinson, T. & Sons, 45 & 46, Gt. Hampton-st., Birmingham.
Wilks, Chas., 16, Mott-st., Birmingham.
Williams & Fowler, 13, Mary-st., Caroline-st., Birmingham.

Digitized by Google

Electro Platers and Gilders—*continued.*

Williams, J. & Co., St. Augustine's-parade, Bristol.
Willington, Mrs. Harriett, 67, Spencer-st., Birmingham.
Wilmot, Albert, 30½, Northwood-st., B'ham.
Wilson & Davis, 25½, Norfolk-st., Sheffield.
Wilson, J., 26, Hall-st., Birmingham.
Wiseman, J., 87½, Branston-st., Birmingham.
Wish, G., Norfolk-lane, Sheffield.
Wolstenholme, Chas. Jas., 70, Navigation-st., Birmingham.
Wood & Sons, 188, Warstone-lane, Birmingham.
Woodall, Mrs. M., 15, Lower Castle-st., Bristol.
Woodward, H. & Co., 21, Paradise-st., B'ham.
Woolley, T., 18, Caroline-st., Birmingham.
Yates, John & Sons, 56, Pritchett-st., B'ham.

Electro Platers' Supply Factors.

F.—Plaqué (Fournitures pour).
G.—Alfenide und Galvanoplastik—Materialen für Fabrikanten.

Boland, W., 1, Caroline-st., Birmingham.
CARLYLE, W. A., 91 & 92, Constitution-hill, Birmingham.
SAUNDERS, W. & J., 3, Augusta-st., Birmingham.

Electro Plating & Typing Machine Manufacturers.

F.—Machine pour dorure, argenture et galvanoplastie (Fab. de).
G.—Maschinen zum Versilbern.

Carlyle, W. A., 91 & 92, Constitution-hill, Birmingham.

Electrotypers.

F.—Electrotype.
G.—Galvanisoure.

BRINKWORTH, W. H., Caledonian Works, Bell Barn-road, Birmingham.
Lowe & Gavagna, 62, Greengate, Salford, Manchester.
Woodward, Joseph, Stereotyper & India-Rubber Stamp Maker, 20, Exeter-row, Birmingham.

Emery Wheel & Machinery Makers.

F.—Roues et machines à emeri (Fab. de).
G.—Schmirgelräder.

Bateman, A. H. & Co., 13, Broad-st.-corner, Birmingham.
CARLYLE, W. A., 91 & 92, Constitution-hill, Birmingham.
Mitchell's Emery Wheel Co., Limited, 20, David-st., Manchester.
Slack's Emery Wheel & Machine Co., Limited, Lime Bank-st., Ashton Old-road, Manchester.
Taylor & Co., 30, St. Paul's-square, Birmingham.
Thomson, Sterne & Co., North Woodside-road, Glasgow.

Enamellers.

F.—Emailleures.
G.—Emailleure.

ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
Clark, F. & C. & Co., Wolverhampton.
Enamel Sign Co., Ablow-st., Penn-road, Wolverhampton.

Engine Makers—Gas.

F.—Machines (Fab. de)—Gas Moteurs.
G.—Gas-Motoren.

Barker, T. B., Scholefield-st., Bloomsbury, Birmingham. Universal Gas Engine.
Crossley Bros., Limited, Great Marlborough-st., Manchester. The "Otto" Silent Gas Engine. *See index to advertisers.*
Crossley Bros., Limited, 182, Sauchiehall-st., Glasgow. *See index to advertisers.*
Piercy & Co., Broad-st., Birmingham.
Proctor & Co. ("Herts."), Stevenage, Hertfordshire.
Simon, L. ("Eclipse"), Nottingham.
Sterne, L. & Co., Limited, North Woodside-road, Glasgow.
TANGYES, LIMITED, Cornwall Works, Soho, & Stephenson's-place, Birmingham.
TANGYE BROS., Royal Exchange, Bank-st., Manchester.
Tangye Bros., Argyle & Hope-sts., Glasgow.
Tangye Bros., St. Nicholas-buildings, Newcastle.
"Turner" Gas Engine Co., Limited (The), St. Albans Iron Works, St. Albans.
VICTOR GAS ENGINE CO., 86, Dale-st., Liverpool. Special Victor for Electric Lighting is unrivalled.
Wright, John & Co., 71, Broad-st., Birmingham. Sole Agent for Crossley's Otto Silent Gas Engines for Birmingham & district.

Engine Makers—Steam.

F.—Machines à Vapeur (Fab. de).
G.—Dampf-Maschinen.

Adamson, Daniel & Co., Engineering Works, Dukenfield, Manchester.
Armstrong, Sir W. G., 17A, South Castle-st., Liverpool.
Aveling & Porter, Strood.
Avonside Engine Co., Limited, Avon-st., Bristol.
Bagnall, W. G., Castle Engine Works, Stafford.
Barker, Benj. L. & Co., Liberty Iron Works, Stalybridge.
Barrows & Stewart, Cherwell Works, Banbury. *See index to advertisers.*
Beckwith, E. & Co., Machinery Stores, Sunderland.
Belliss, G. E. & Co., Ledsam-st. Works, Ledsam-st., Birmingham.
Black, Hawthorn & Co., Gateshead.
Buchanan, J. & Son, 77, Brasenose-rd., Liverpool.

Digitized by Google

Engine Makers—Steam—*continued.*

Chadwick, J. & Son, Prince's-bridge Iron Works, Manchester.
Clayton, Shuttleworth, Stamp End Iron Works, Lincoln.
Coalbrookdale Co. (The), Limited, Coalbrookdale, Shropshire.
Coupe, R. J. & E., Worseley Mesnes Iron Works, Wigan.
Chaplin, Alex. & Co., Cranston-hill Engine Works, Glasgow.
Davies, Jas. & Co., Wednesbury.
Deakin, Parker & Co., Sandon-st., Salford, Manchester.
Dubs & Co., Glasgow Locomotive Works, Gushetfaulds, Glasgow.
Dunlop, Bell & Co., 32, Greenland-st., Liverpool.
Easton, Anderson, Erith Iron Works, Erith.
Emmerson, Murgatroyd & Co., Limited, Stockport.
Fawcett, Thos. C., Old Victoria Foundry, Manor-road, Leeds.
Forrester, G. & Co., Vauxhall Foundry, 200, Vauxhall-road, Liverpool.
Foster, Wm. & Co., Wellington Foundry, Lincoln.
Fowler, J. & Co., Steam Plough Works, Leathley-road, Hunslet, Leeds.
Furness, W. & Co., 21, Jasmin-st., Everton, Liverpool.
Galloway, W. & J. & Sons, Knott Mill Iron Works, Manchester.
Garrett, R. & Sons, Leiston Works, Leiston.
Hall, J. & E., Dartford, Kent.
Hempsted & Co., Phœnix Iron & Crank Works, Grantham.
Hick, Hargreaves & Co., Soho Iron Works, Bolton.
HINDLEY, E. S., Bourton, Dorset. London Office, 52, Queen Victoria-st., E.C. *See index to advertisers.*
Hopkins, Gilkes & Co., Tees Engine Works, Middlesbrough.
Hornsby, R. & Sons, Limited, Spittlegate Iron Works, Grantham.
Hyde Park Locomotive Wks., Springburn, G'gow.
Ingham, E. & W., 11, Queen-st., Oldham.
Jessop, J. & Son, Leicester.
McCulloch, Thos. & Sons, Kilmarnock.
Marshall, Sons & Co., Limited, Britannia Iron Works, Gainsborough.
Midgley, D., Viaduct Iron Works, Stanningley, near Leeds.
Neill, W. & Son, St. Helen's Junction, Lancashire.
Ormerod, Grierson & Co., St. George's Iron Works, Hulme, Manchester.
Perry, M., 29, Mary-st., Birmingham.
Piercy & Co., Broad-st., Birmingham.
Phillips, Chas. D., Emlyn Works, Newport, Monmouthshire.
Price & Scott, 39, Sefton-st., Liverpool.
Ransomes, Head & Jefferies, Orwell Works, Ipswich. *See index to advertisers.*
Reading Iron Works Co. (The), Ld., Reading.
Robey & Co., Globe Works, Lincoln. *See index to advertisers.*
Robinson, T. & Co., Oldham-road, Rochdale.

Engine Makers—Steam—*continued.*

Ruston, Proctor & Co., Lincoln. Electric Light Engine, with Automatic Expansion Gear. *See index to advertisers.*
Salmon, James, 12, Parsonage, Manchester.
Stephenson, C. T. & Sons, Limited, Boston, Lincolnshire.
Storey, Isaac & Sons, Knott Mill, Manchester.
TANGYES, LIMITED, Cornwall Works, Soho, & Stephenson-place, Birmingham.
TAYLOR & CHALLEN, Birmingham.
Thompson Bros. & Walker, Seaham.
Turner, E. R. & F., Ipswich.
Wallis & Steevens, North Hants Iron Works, Basingstoke.
Walmesley & Edwards, 16, William Moult-st., Liverpool.
Yates, Wm. & John, Canal Foundry, Blackburn.

Engineers—Civil.

F.—Ingènieurs—Civils.
G.—Ingenieure—Civil.

Thornbery, W. H., jun., 121, Colmore-row. Birmingham.

Engineers—Consulting.

F.—Ingenieurs—Electriciens consultants.
G.—Ingenieure—Consultirende.

Arthur, John, 5, City-road, Chester.
Barker, Geo., 77, Colmore-row, Birmingham.
Bell, George Angelo, 10, Newgate-st., Chester.
Blackburn, Edwin, 91, Church-rd., Higher Tranmere, Birkenhead.
Bowman, E., Buller's-green, Morpeth.
Bremner, J., 66, Wright-st., Hull.
Buchanan & Co., Prince's Dock-chambers, Prince's Dock-st., Hull.
Carson, R., 5, Minerva-terrace, Hull.
Coats, Joseph, Forest, High Allendale.
Cockburn, W., Saltburn-by-the-Sea.
Cole, William, Sunnyside-house, Park-gate, Great Neston.
Cope, Charles, Portland-house, Odd Rode, Lawton.
Crondace, John, Choppington, Morpeth.
Crossby, Ingham & Co., New Exchange-buildgs., Middlesbrough.
Davies, Benj., 12, Union-walk, Chester.
Dodsworth, C., 47, Elswick-row, Newcastle.
Drinkwater, George, 107, Old Chester-road, Tranmere, Birkenhead.
Edwards, Fred., 15, Cambridge-st., Newcastle.
Elliot, W. D., C.E., Salthouse-lane, Hull.
Francis, Geo., Ffrith, near Wrexham.
Francis, George, 20, Newgate-st., Chester.
Hare, G. S., India-chambers, South-side, Queen's-dock, Hull.

Digitized by Google

Engineers—Consulting—*continued.*

Harrison, John A., Central-buildings, Grainger-st., Newcastle.
Ingham, E. & W., 11, Queen-st., Oldham.
Hawthorn, William, 92, Pilgrim-st., Newcastle.
Howson & Wilson, 2, Exchange-place, Scarboro'.
Jameson & Schaeffer, Printing-court-chambers & Akenside-hill, Newcastle-on-Tyne.
Jamieson, Andrew, C.E., F.R.S.E., &c., *Principal*, College of Science and Art, Glasgow.
Jones, John, 21, Holt-hill, Higher Tranmere, Birkenhead.
Laws, William Geo., Central-buildings, Grainger-st., Newcastle.
Lea, James, Grosvenor-st., Liscard-park, Liscard, Birkenhead.
Liddell, John, 10, Claremont-place, Newcastle-on-Tyne.
Massey, Wm. H., Twyford, Berks.
Marillier, R. A., Newland-park, Hull.
Menzies & Blagburn, Exchange-buildings, King-st., Newcastle.
Morrison, D. P., 21, Collingwood-st., Newcastle.
Naylor & Bell, 30, Clayton-st., Newcastle.
Naylor, J. T., 10, Clayton-st., Newcastle.
Parry, Henry, 74, Quayside, Newcastle.
Rampling, Wm., Quarry-bank, Higher Tranmere, Birkenhead.
Roberts, Becket & Kirk, 4, St. Werburgh's-mount, Chester.
Rudd, Thomas, 1, Woodland-terrace, Higher Tranmere, Birkenhead.
Samuelson, M., C.E., Yorkshire-buildings, Lowgate, Hull.
Scott, R., The Exchange, Bowlalley-lane, Hull.
Smith, W., 22, Grey-st., Newcastle.
Spence, James, Printing-court-bldgs., Newcastle.
Stewart, W., 16, St. Werburgh-st., Chester.
Stott & Sons, 4, Corporation-st., Manchester.
Taylor, Henry E., Newgate-house, 15, Newgate-st., Chester.
Tone, J. F., 67, Pilgrim-st., Newcastle.
Wells, Lionel B., Highfield, Castle Northwich, Northwich.
Williams, John, Crewe.

Engineers—Electric Light.

F.—Ingenieurs—Eclairage électrique.
G.—Ingenieure—Electrisches Licht.

BURY, H., Manchester-chambers, 46, Market-st., Manchester. *See index to advertisers.*
CARLYLE, W. A., 91 & 92, Constitution-hill, Birmingham. *See index to advertisers.*
Crompton Winfield Electric Light Association (The), Cambridge-st. Works, Birmingham & 49, Farringdon-st., E.C. *See index to advertisers.*
Crompton, R. E., Arc Works, Chelmsford.
Holmes, W. C. & Co., Bradford-road, Huddersfield.
Jamieson, Andrew, C.E., F.R.S.E., &c., *Principal*, College of Science and Art, Glasgow.
Little, James, 69, Clayton-st., Newcastle.
Massey, Wm. H., Twyford, Berks.

Engineers—Electric Light—*continued.*

Norman & Son, 217 to 223, Argyle-road, Glasgow.
RAWORTH, JOHN S., 6, St. Mary's-gate, Manchester.
Robey & Co., Globe Works, Lincoln. *See index to advertisers.*
Sennett, A. R., Worthing, Sussex.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*
SMITH & CHAMBERLAIN, 3, New Bartholomew-st., Birmingham. Makers of Electric Light Fittings. Installations effected.
TASKER SONS & CO., New Station-road, Sheffield. *See index to advertisers.*
Walker, Sidney F. & Oliver, 195, Severn-road, Canton, Cardiff.
Watson, Henry, 39, High-bridge, Newcastle.
Woodhouse & Rawson, 3, High-st., Belfast. *See index to advertisers.*

Engineers—Electrical.

F.—Ingenieurs—Electriciens.
G.—Ingenieure—Electricität.

Davis, J. & Sons, All Saints' Works, Derby.
Harrison, Cox, Walker & Co., Darlington. Telephone & Pneumatic Engineers.
Jamieson, Andrew, C.E., F.R.S.E., &c., *Principal* College of Science and Art, Glasgow.
Robey & Co., Globe Works, Lincoln.
Tasker, Sons & Co., 32, Angel-st., Sheffield. *See index to advertisers*
Thornbery, W. H., jun., 121, Colmore-row, Birmingham.
Walker, Sidney F. & Oliver, 195, Severn-road, Canton, Cardiff.
WILDE, HENRY, 37, Mill-st., Ancoats, Manchester.

Engineers, Electrical—Consulting.

F.—
G.—Ingenieure der Electricität—Consultirende.

SHARPLES, CHAS. H., F.C.S., A.S.T.E. & E. 7, Fishergate, Preston.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*
LEA, HENRY, 38, Bennett's-hill, Birmingham.
Norman & Son, 217 to 223, Argyle-rd, Glasgow.

Engineers, Electrical—Testing.

F.—Ingenieurs—essai électrique.
G.—Ingenieure zum Prüfen der Electricität.

Jamieson, Andrew, C.E., F.R.S.E., &c., *Principal*, College of Science and Art, Glasgow.

Engineers—Hydraulic.

F.—Ingenieurs—hydrauliques.
G.—Ingenieure—hydraulische.

Evans, J. & Sons, Culwell Foundry, W'hampton.
Warsop & Hill, Deering-st., Wilford-road, Nottingham.

Digitized by Google

Engineers—Lighthouse.

F.—Ingenieurs—Phares.
G.—Ingenieure für Leuchthürme.

Astbury, T. & Son, Smethwick Foundry, Rolfe-st., Birmingham.
Chance Bros. & Co., Lighthouse Works, Smethwick, Birmingham.
Dove, J. & Co., 18, Greenside-lane, Edinburgh.
Ormerod, Grierson & Co., Chester-road, Hulme, Manchester.
Smith, W., 60, Sandhill, Newcastle.
Stevenson, D. & T., 84, George-st., Edinburgh.
Stothert & Pitt, Newark Foundry, Lower Bristol-road, Bath.

Engineers—Mechanical.

F.—Ingenieures—Mecaniciens.
G.—Ingenieure—Maschinenbau.

Acaster, A. J. & Co., Princess Works, Sheffield. Specialities:—Massive 14-H.P., Vertical Steam Engines (Inverted Cylinder 12¼-in. bore), Price £95, for driving Dynamo-Electric Machines; Patentees of the Acaster Rails and Joints for Railways; The Acaster patent quick speed, direct acting, and geared Punching and Shearing Machine.
Armstrong, Sir W. G. & Co., Elswick works, Newcastle.
Billington & Newton, Vulcan Foundry, Longport, Burslem, Stafford.
Bridges, Thos. & Son, Horsleyfields, W'hampton.
Crossley Bros., Gt. Marlboro'-st., Manchester. *See index to advertisers.*
Dale, Josiah, Davenham, Northwich.
HALL, C. E., Meersbrook Bank, Sheffield.
Heslop, John, St. Andrews, Auckland, Bishop Auckland.
Jamieson, Andrew, C.E., F.R.S.E., &c., *Principal*, College of Science and Art, Glasgow.
Janson, C. Son & Co., Darlington.
MOON, HENRY, 103, Suffolk-st., Birmingham. Toothed Wheel Manufacturer, from ¼ to 30-ins. diameter.
Naish, Arthur John & Sons, 21, 22 & 23, Coleshill-st., Birmingham.
Reading Iron Works Co. (The), Ld., Reading, Berks.
Robey & Co., Globe Works, Lincoln. *See index to advertisers.*
Ruston, Proctor & Co., Sheaf Iron Works, Lincoln. *See index to advertisers.*
Tangye Brothers & Rake, 4, St. Nicholas-bldngs, Newcastle.
Tangye Brothers (Richard Hoskin, agent), 1, East-parade, Sheffield.
TASKER, SONS & CO., New Station-st., Sheffield. *See index to advertisers.*
TAYLOR & CHALLEN, Constitution-hill, Birmingham.
TAYLOR, CHARLES, Edmund-st., B'ham.
Thornbery, W. H. Junr., 121, Colmore-road, Birmingham.
Wallis & Stevens, North Hants Ironworks, Basingstoke.

Engineers—Mining.

F.—Ingenieurs.
G.—Ingenieure—Bergbau.

Ashworth, Thos., 25, Pratt-st., Fenton Culvert, Stoke-on-Trent.
Bailey, S. & J., Perry Barr, Stafford.
Barker, G., Mount Pleasant House, Bedworth, Nuneaton.
Beckett, H. H., 59, Queen-st, Wolverhampton.
Blakemoor, W., jun., Heath Town, W'hampton.
Bonser, H., Clifton-terrace, Newcastle.
Boosie, A., Llay Hall Colliery, near Wrexham.
Griff Colliery, Chilvers Coton, Nuneaton.
Brettell, T., 188, High-st., Dudley.
Broughall, J., Cradley, Brierley Hill.
Bowkley, Alfd., Yew Tree-house, Summerhill-road, Coseley, Bilston, Stafford.
Burne, J. W., 3, Bridgeman-place, Walsall.
Checkley, Thos., 70, Lichfield-st., Walsall.
Cole, J. H., St. John's-chambers, Queen-st., Burslem, Stafford.
Cooksey, J. & Son, 20, Paradise-st., West Bromwich.
Cope, J., 3, Copeland-st., Stoke-on-Trent.
Davenhill, R. S., Blakenall Heath, Bloxwich, Walsall.
Davis, E., Birmingham-st., Dudley.
Fairley, Wm., Cannock Wood, Gentleshaw, Rugely, Stafford.
Fellows, J. U., 46, Bradford-st., Walsall.
Field, J., The Woodlands, Hill Top, West Bromwich.
Fisher, Thos. T., Bank-chambers, The Bridge, Walsall.
Grove, Wm., jun., 104, Oxford-st., Bilston, Stafford.
Growcott, J., Wall Heath, Dudley.
Growcott, R., Dawley-brook, Kingswinford, Stafford.
Hackett, J., Blackheath, Rowley Regis.
Harle, M., Pelsall, Walsall.
Hawkins, J., Cheslyn Hay, Walsall.
Haywood, W. J., 269, Castle-st., Dudley.
Hill, J., Ashmore-lodge, Wednesfield.
Homer, C. J., Ivy-house, Bucknall-road, Hanley, Stafford.
Johnson, H., 5, Trindle-road, Dudley.
Jones, E., Oakwood, West Bromwich.
Keen, Wm, Cradley Heath, Rowley Regis.
Latham, R., Tie-st., Bates-hill, Dudley.
Lees, D. W., 2, New-road, Willenhall.
Lindop, A. H., Station-st., Bloxwich, Willenhall
Lindop, J., Lime Tree-house, Bloxwich, Walsall.
McGhie, T., Cannock, Stafford.
Morgan, E., Warwick-road, Spark-hill, Yardley, Birmingham.
Parton, T., 36, Dudley-street, West Bromwich.
Peacock, D., Oakley, Roebuck-la., West Bromwich.
Pell, J., Abrowas, Lichfield, Stafford.
Perrins, E., St. Peter's-chambrs., Stoke-on-Trent.
Plant, R., Foster-house, Wordsley, Stourbridge.
Rogers, D., Tansoy Grange-house, Pensnett, Dudley.
Shakespeare, J., Hill Top, West Bromwich.

Digitized by Google

Engineers—Mining—*continued.*

Skidmore, J., Dennis-park, Amblecoate, Stourbridge.
Smallman, J., Essington, Wolverhampton.
Smallman, R., Camp-hill-grange, Nuneaton.
Spruce, J., The Laurels, Wall Heath, Dudley.
Spruce, T., Albert-road, Tamworth, Stafford.
Spruce, W., The Laurels, Wall Heath, Dudley.
Staley, T., Chapel-st., Bedworth, Nuneaton.
Steele, R., 18, Albion-st., Hanley, Stafford.
Tansley, A. E., Bedworth, Nuneaton.
Taylor, G. C., Bank Cot, Dudley.
Terry, E., Wadham's Pool, Dudley.
Webb, M., Brownhills, Walsall.
Williams, J., Birchills, Walsall.
Whitehouse, J., Burnt Tree, Dudley.
Whitehouse, W. H., 27, Lichfield-st., Walsall.
Whittem, T. S., Wyken Colliery, High-st., Lowe, Coventry.
Wynne, R. H., Stanley-villa, Regent-st., Stoke-on-Trent.

Engineers—Telegraph & Telephone.

F.—Ingenieurs—Télégraphe.
G.—Ingenieure—Telegraphenbau.

Bailey, W. H. & Co., Essex-st., Salford, Manchester.
Bickerton, J., 21, Bridge-st., Deansgate, Manchester.
Blakey, Emmott & Co., Telegraph Wks., Halifax.
Butler, E., 36, Corn Exchange-chmbrs., Chester.
Butler, E. B., Oxford-chambers, 71, Lord-st., Liverpool.
Butler, V., Lord-st., Liverpool.
Davis, J. & Co., 51, Tyrrell-st., Bradford.
Davis, J. & Son, All Saints'-works, Derby.
Evans, M., 97, West Regent-st., Glasgow.
Gent, J. T. & Co., King Richard's-rd., Leicester.
Graham, D. & G., 267, Sauchiehall-st., Glasgow.
Hall, W., Pier-road, Erith.
Hallewell, C., New Briggate, Leeds.
Harper, J. & Co., Albion-works, Willenhall, Wolverhampton.
Harrison, Cox, Walker & Co., Darlington. Telephon & Pneumatic Engineers.
Jamieson, Andrew, C.E., F.R.S.E., &c., *Principal*, College of Science & Art, Glasgow.
Jobson Bros., Phœnix-works, Dudley.
King, F., Lawrence-hill, Bristol,
Kirkcaldy, R., 10, Charles-st., Monkwearmouth, Sunderland.
Mitchell, W., 4, Guthlaeton.st., Leicester.
Newall, R. S. & Co., 68, Anderston-quay, Glasgow.
OPPENHEIMER, J., 52, Brown-st, M'chester.
Pitt, T. S. & Co., 18, Waingate, Sheffield.
Postal Telegraph Engineers, 9 & 10, Peel-buildings, Lower Temple-st., Birmingham.
RADCLYFFE, A. H. W., 5, Cans-lane, High-st., Birmingham.
Saunders, J. B. & Co., Cardiff-st., Teignmouth.
Saunders, J. B., The Laurels, Taunton.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*
Sinsey, G. R., 55, Fawcett-st., Sunderland.

Engineers—Telegr. & Teleph.—*continued.*

Smith, G. E., 210, Nth. Sherwood-st., Nottingham.
Walker, Sydney F. & Oliver, 195, Severn-rd., Canton, Cardiff.
Walker, S. F., Black Boy-yard, Nottingham.
White, J., 241, Sauchiehall-st., Glasgow.

Engineers' Tool Makers.

F.—Utiles pour Ingenieurs.
G.—Werkzeug für Ingenieure.

Archdale, James & Co., Manchester-works, Ledsam-st., Birmingham.
Berry, Francis & Sons, Calderdale Iron-works, Sowerby-bridge, Yorkshire.
Eades, Wm. Son & Co., Montgomery-st., Sparkbrook, Birmingham.
Turton, Thomas, & Sons, Sheaf-works, Springworks, Sheffield.

Engravers on Wood.

F.—Graveurs sur Bois.
G.—Holzbildhauer.

Allard & Gale, 4, Victoria-chambers, Temple-row, Birmingham.
Baker & Parker, 3, Richard-st., Birmingham.
Beesley, Arthur, York-passage, High-st., B'ham.
Bluck, Benjamin, 90, New-st., Birmingham.
Bradley, James T., 162, Edmund-st., B'ham.
Chadwick, John Wm., 100, Colmore-row, B'ham.
Chilee, Edward, 39, Hampton-st., Birmingham.
Dilcock, T., 14, Court, Carver-st., Sheffield.
Eyles, John F., 39, Newhall-st., Birmingham.
Gale, W., 4, Victoria-chambers, Temple-row, Birmingham.
Jeffries, J. H., 119, Newhall-st., Birmingham.
Jones, J. W., 119, Newhall-st., Birmingham.
Lucas, A., 35, Great Charles-st., Birmingham.
Marshall, J. E., Court 14, Carver-st., Sheffield.
Miller, A., 119, Newhall-st., Birmingham.
Page, T., 83, Vyse-st., Birmingham.
Smith, John Henry, 21½, Carver-lane, Sheffield.

Felt Manufacturers.

F.—Feutre (Fab. de).
G.—Filz-Fabrikanten.

Braby, Frederick & Co., 20, 22 & 24, Gt. Clyde-st., Glasgow.
Buchanan & Co., 12, Princes-square, Glasgow.
Cooper & Co., Felt Works, Little King-st., B'ham.
Croggon & Co., 200, Upper Thames-st., London, E.C.; and Liverpool and Glasgow.
Glasgow Patent Felt Co., 7, Royal Bank-pl., Glasgow.
Hendry Bros., 79 & 81, Gt. Clyde-st., Glasgow.
Laing, R. G., 29, Waterloo-st., Glasgow.
M'Neil, J. & Co., 108, Argyle-st., Glasgow.
Robertson, Peter, 32, Queen-st., Glasgow.
Shaw, Walter, 16 & 17, Park-st., Birmingham. Wholesale roofing felt warehouse.

Digitized by Google

Fibre Manufacturers.

F.—Fibre (Fab. de).
G.—Faser-Fabrikanten.

Hanman, John, jun., 66, Pershore-st.; Works, 166, Sherborne-road, Birmingham.

Flexible Gas Tube, &c. Makers.

F.—Tuyaux à Gaz flexibles, Téléphones, etc. (Fab. de).
G.—Fabrikanten für Gas-, Sprech- und Telephon-Röhren.

Lewis, Edwin & Son, Wolverhampton.

Galvanic Apparatus Dealers.

F.—Appareils galvaniques (Marchands d').
G.—Galvanische Apparate—Händler.

Parsons, Fredk., 30, Gallowtree-gate, Leicester.

Galvanizers.

F.—Galvaniseurs.
G.—Galvaniseure für Eisen.

ASH, J. & SONS, Rea-st.-south, Birmingham.
Austin, Josiah, William-st., Penn-st., Deritend, Birmingham.
Baker, George & Co., Chester-st., Dartmouth-st., Birmingham.
Beach, W. T. & Co., Albert Works, Stewart-st., Wolverhampton.
Bratt, J. & A., Clarence-st., Wolverhampton.
Brown, James, 76, St. Vincent-st., Glasgow.
Brownlie & Murray, Possill Iron Works, Possill-road, Glasgow.
Burr, Alex., 62, Howard-st., Glasgow.
Campbell, Thos. B., 29, Wellington-st., Glasgow.
Chillington Iron Co., Limited, Wolverhampton.
Cook, Williams & Co., Warrington.
Crown Galvanizing Co. (C. A. Wall, proprietor), 57, Milk-st., Birmingham.
Davies, Bros. & Co., Crown Works, W'hampton.
Dixon, Isaac, 62, Howard-st., Glasgow.
Ensor & Thomas, Ettingshall, Wolverhampton.
Evans, Fredk. & Charles, Church-lane, Wolverhampton.
Evans, W. & Sons, Melbourne-st., W'hampton.
Harbutt, Thomas & Co., 56, Borough-road, North Shields.
Harriman, J. & J. & Co., 5, Middle-row, Wolverhampton.
Hill & Chilton, 1, Pearson-st., Wolverhampton.
Holcroft, J. & C., Portfield Iron Works, Dudley Port, Tipton.
Hyde Park Galvanizing Works, Hyde-park-st., Glasgow.
Jones, J., Beehive Works, Tame-st., Bilston, Stafford.
Kirkinstall Bros., 15 & 16, Milk-st., Birmingham.
Kirkpatrick, A. & Co., 24, Buchanan-street, Glasgow.
Lloyd, Saml. & Co., Sidney-st., Wolverhampton.
Ludlow Brothers, 7, Palmer-st., Birmingham.
Luther, W. H., 20, Gt. Clyde-st., Glasgow.
M'Haffie, Jas., 47, Calderwood-st., Glasgow.

Galvanizers—*continued.*

Monro, P. & Co., 180, W. Regent-st., Glasgow.
Morris, Henry, 38, Longmore-st., Birmingham.
Mould, J. & Son, Byron Works, Cox-st.-west, Balsall-heath, Birmingham.
Pearson, Thos. & Co., 50, Waterloo-st., Glasgow.
Porteous & Crawford, 94, Elliot-st., Glasgow.
Ramsden, Camm & Co., Brighouse, Yorkshire. London office: 72, King William-st., E.C.
Russell, J. & Son, The Green, Darlaston, Stafford.
Smith, Frederick & Co., Caledonia Works, Halifax.
Smith, G. B. & Co., 61, W. Regent-st., Glasgow.
Smith & M'Lean, Mavisbank, Glasgow.
Smith, M. A. W., 20, Moor-st., Birmingham.
Stevens, Edwd., Quarry-bank, Brierley-hill, Stafford.
Taylor, Ed., 86, New John-st.-west, B'mingham.
Topham & Snushall, 26, Oxford-st., B'mingham.
Walker Brothers, Pleck-road, Walsall, near Birmingham.
Walsh, O. S., 229, Dudley-st., Wolverhampton.
Walker, T. W. J., 21, West Nile-st., Glasgow.
Warren, R., 57, Park-st., Birmingham.

Gas Fittings Makers to suit Electric Installations.

F.—
G.—

CROMPTON WINFIELD (THE) ELECTRIC LIGHT ASSOCIATION, Cambridge Street Works, Birmingham, and 47, Farringdon-st., E.C. Gold medal (Rappel) Paris Exhibition, 1878. *See index to advertisers.*
RATCLIFF, EDMUND, 59, St. Paul's-square, Birmingham.
Sambridge, W. H., 41 & 42, Lombard-st., B'ham.
Whitehouse, Wm. & Co., 1, Carver-st., B'ham.

Gas and Water Pipe Manufacturers.

F.—Tuyaux de Gas et d'Eau.
G.—Röhren für Gas- und Wasserleitung.

Allan, T. & Sons, Springbank Iron Works, Glasgow.
Allsup, W. & Son, Caledonian Foundry, Strand-road, Preston.
Armstrong, Sir William G. & Co., Elswick Works, Newcastle-on-Tyne.
Camelon Iron Company, Camelon Iron Works, Falkirk.
Cochrane, Grove & Co., Ormesby Iron Works, Middlesborough.
Crewdson, Hardy & Co., Yorkshire Tube Works, Middlesborough.
Griffiths, I. & Sons, Imperial Tube Works, Mesty Croft, Wednesbury, Birmingham.
Kerr & Co., Caledonia Foundry, Firhill-road, Glasgow.
Lloyd & Lloyd, Albion Tube Works, Birmingham.
Newton, Chambers & Co., 47, South-st., Moor, Sheffield.
Russell, J. & Sons, Ltd., Crown Tube Works, Wednesbury.
Stewart, A. & J., 37, Oswald-st., Glasgow.
Stewart, D. Y. & Co., St. Rollox, Glasgow.

Digitized by Google

Gauge and Draw Plate Makers.

F.—

G.—Drahteisen.

Shakespeare & Son, 54A, Park-road, Aston-park, Birmingham.

Gauge Glass Manufacturers.

F.—

G.—Wasserstandröhren.

Butterworth Brothers, Newton Heath Glass Works, Manchester.
Kenyon, A. & Co., Market-place, Manchester.
Tomey, Joseph & Son, Catherine-st., Birmingham.
Treasure, J. B. & Co., 8, Vauxhall-road, Liverpool.

Gauge Makers.

F.—Eprouvettes.
G.—Manometer.

Burden, James, Conybere-st., Birmingham.
Glydon, George, 40 & 41, Oozells-st., Birmingham.
HUNT, MILTON & CO., 14 & 15, Oozells-st., Birmingham. Gauge Pressure and Vacuum.
Jennens, Joseph & Thomas E., 64, Villa-street, Birmingham.
Payne & Griffiths, 15, Severn-st., Birmingham.
Schäffer & Budenburg, Southgate, Manchester.
Walker, T. & Son, 58, Oxford-st., Birmingham.
Wright, Chas. F., 79 & 80, Ashted-row, B'ham.

German Silver Casters & Manufacturers.

F.—Maillechort (Fondeurs etc.)
G.—Neusilber-Former und Fabrikanten.

Barker, Stephen, 16, Oozells-st.-north, B'ham.
Browett, Alfred, 14, Dean-st., Birmingham.
Phœnix, Willoughby A., 2A, New Canal-st., Birmingham.
Vivian, H. H. & Co., 46, George-st., Parade, Birmingham.
Wilkinson, John & Sons, Branston-st. Metal Works, Branston-st.; & Rolling Mills, Adderley Park-road, Saltley, Birmingham.

German Silver Wire Manufacturers.

F.—Fil de Maillechort (Fab. de).
G.—Neusilber-Draht—Fabr.

ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
RICKARD, W., Ashbourne-road Mills, Derby.
Russell, S., 29, Birmingham-st., Walsall.
Wiggin, Henry & Co., Birmingham.

Glass Globe Manufacturers.

F.—Verre (Fab. de globes).
G.—Glaskugeln für electrische Lampen.

Adam & Small, 193, Sauchiehall-st., Glasgow.
Aitkenhead, Geo., 260, Dumbarton-road, Glasgow.

Glass Globe Manufacturers—*continued.*

Anderston Bottle Works, 13, Princes-square, Glasgow.
Anderson, Jas., 205, Shandon-place, Govan-road, Glasgow.
Arbuckle, John, 376, New City-road, Glasgow.
ARCULUS, ALFRED, 295, Broad-street, Birmingham. Globes for Electric Lighting Purposes, in Flint, Opal, Alabaster, &c.
Arroll, Arch & Sons, 16, Dixon-st., Glasgow.
Baird, John, 71, Bishops-st., Port Dundas, Glasgow.
Barrow, F. A., 143, Wellington-st., Glasgow.
Beatson & Co., Rotherham Glass Works, George-st., Masborough, Rotherham.
Bishop, S. & C. & Co., St. Helen's, Lancashire.
Black, Neil, 12, Morrison-st., S.S., Glasgow.
Blacklock, D. & Co., 82 & 84, Jamaica-street, Glasgow.
Bogle, Gilbert & Co., 47, Oswald-st., Glasgow.
Borron & Co., 92, Lancefield-st., Glasgow.
Bradley & Hall, 82, London-road, Sheffield.
Campbell, Robt., 8, Elderslie-st., Glasgow.
Carrick, Robt. & Co., 71, Brown-st., Glasgow.
Caulfield & Co., 68, Jamaica-st., Glasgow.
Chance Bros. & Co., Glass Works, Smethwick, Birmingham.
Christie Bros., 133, St. Vincent-st., Glasgow.
Clyde Bottle Works Co., 50, Charles-st., St. Rollox, Glasgow.
Coaney, Edmund & Co., 82, Moor-st., B'ham.
Cochrane, A. & R., Tennant-st., Glasgow.
Cotterell, Wm., 9 & 15, Paisley-road, Glasgow.
Couper, James & Sons, City Flint Glass Works, Kyle-st., Glasgow.
Craig, Jas., 91 & 93, King-st., City, Glasgow.
Cullen, Jn., 7, Ranfurley-place, Paisley-road, Glasgow.
Cunningham, John & Co., 90, Kinning-street, Kingston, Glasgow.
Cutler, S., 6, Horsley-fields, Wolverhampton.
Denton, G. jun., 16, Frederick-st., Rotherham.
Finch, George & Co., 39, Rupert-st., B'ham.
Gammon, William & Co., Belmont Glass Works, Great Brook-st., Birmingham.
Hateley, James, Chester-street, Dartmouth-st., Birmingham.
Hawkes, J. & O. C., 123 to 129, Bromsgrove-st., Birmingham.
Hawley, Harry, 29, Old Haymarket, Sheffield.
Homer, James F., 78 & 79, Cecil-st., Birmingham.
Lane, Josiah, 41 & 42, Hampton-st., Birmingham.
Newton, Oliver, 44, Cambridge-st., Birmingham.
Osler, F. & C., 230 & 231, Broad-st. & Freeth-st., Birmingham, and at 45, Oxford-st., London, W.
Parkin, Walter George & Co., 30 & 32, High-st., Sheffield.
Pearce, William, Bridge-st., Broad-st., B'ham.
Pilkington Brothers (The St. Helen's Glass Co.), 85 & 86, Slaney-st., Birmingham.
Primrose & Co., Corporation-st., Sheffield.
Richardson, J. T. H., Castle Glass Works, Hatton, Tutbury, Burton-on-Trent.
Rowen, W., 26, Clumber-st., Nottingham.

Digitized by Google

Glass Globe Manufacturers—*continued.*

Sarsons, Henry & Son, Chester-st., Dartmouth-st., Birmingham.
Sowerby & Co., 10, Broad-st., Birmingham.
Stevens, James & Son, Victoria Glass Works, Dartmouth-st., Birmingham.
Stone, Fawday & Stone, Dartmouth-st., B'ham.
Tomey, Joseph & Sons, Catherine-st., Lichfield-road, Birmingham.
WALSH, JOHN W., Works, Soho, Birmingham; London Offices: 4, Holborn Circus, E.C. Manufacturer of every description of Glass Globes in Flint, Opal, Alabaster, &c., specially adapted for Electric Lighting, also Tubing for making Incandescent Lamps, &c.
Westwood & Moore, Brierley-hill, Staffordshire.
Wilson & Co., 11, Maxwell-st., Glasgow.
Woodall & Son, (of St. George's Glass Works, Birmingham), (Rbt. Asquith, Agt.), 82, Norfolk-st., Sheffield.

Governor Makers.

F.—Régulateurs (Fab. de).
G.—Regulator-Fabrikanten.

Busch, John, Oldham, Lancashire. Busch's Patent Gas Governor.
Whitley, Partners, Railway Works, Hunslet-rd., Leeds.

Grease Manufacturers.

F.—Graise (Fab. de).
G.—Schmiere-Fabrikanten.

Batigan, B., 3, Staniforth-pl., Hessle-rd., Hull.
Bores, J. & W., Robert-st., Hull.
Graham, Malcolm & Co., 50, Anderston-street, Gallowgate, Glasgow.
Hansell, G., Oxford-st., Sulcoates, Hull.
Harmer, W., Stoneferry, Sutton, Hull.
Hunter, G., Cumberland-st., Hull.
Johnson Brothers, Cleveland Works, Air-st., Sulcoates, Hull.
McBean, H. & Co., 50, Cook-st., Glasgow.
Milton Chemical Co., 22, Dundas-st., Glasgow.
Nettleship, Mrs. Anne, Vicar-lane & Tudor-st., Sheffield.
Sansom, J. & Co., 104, Port Dundas-road, Glasgow.
Seddon, J. & T., York-st., Sulcoates, Hull.
Smith, Richd., 114, West-st., Tradeston, Glasgow.
Storrey, Smithson & Co., Princes-chambers, 187, High-st., Sulcoates, Hull.

High Speed Engine Makers.

F.—Moteurs à Grand Vitesse.
G.—Dampfmaschinen zur Erzeugung der Electricität.

Fletcher, Jennings & Co., Lowca Engine Works, Whitehaven.
HETT, CHAS. L., Ancholme Iron Works, Brigg.
HINDLEY, E. S., Bourton, Dorset, England; London Office: 52, Queen Victoria-st., E.C.
HOLLIDAY, RICHARD, Newton-st. Works, Newton-st. Birmingham.

High Speed Engine Makers—*continued.*

Reading Iron Works Co. (The), Ld., Reading, Berks.
Robey & Co., Globe Works, Lincoln.
Ruston, Proctor & Co., Sheaf Iron Works, Lincoln.

Hinge Makers.

F.—Charnières (Fab. de).
G.—Charniere—Fabr.

Martineau, F. E. & Co., 278, New-town-row, Birmingham.
Whitehouse, J., Wolverhampton.

Holdfasts (for Gas, Iron & Water Pipes) Makers.

F.—
G.—Krammen für Gas-, Wasser- Röhren etc.

McCorkindale & Sons, 27, Douglas-st., Glasgow.

India Rubber and Gutta Percha Manufacturers.

F.—Caoutchouc (Fab. de).
G.—Gummi-Fabriken.

Binney & Son, 50, W. Howard-st., Glasgow.
Birmingham India Rubber Company, New-st., and Charles Henry-st., Birmingham.
Blacklock, Goudie & Co., 69, Jamaica-st., Glsw.
Broadhurst & Co., Bank-buildings, 11, Bank-st., Sheffield.
Campbell, Achnach & Co., 25, Jamaica-st., Glsw.
Castle Rubber Co., 71, Finnieston-st., Glasgow.
Clydesdale Rubber Co., 58, Gordon-st., Glasgow.
Dempster, Moore & Co., 49, Robertson-st., Glsw.
Glasgow Rubber Works, Mayhill-road, Glasgow.
India Rubber, Gutta Percha and Telegraph works Co., Ltd.; Office, 106, and Warehouse 100, Cannon-st., London, E.C.; 10, Castle-st., Sheffield; and (George Linney, manager), 35, Kirkgate, Bradford.
Johnson & McBean, 4, Wellington-st., Glasgow.
Lister, W., Coal Exchange, 58, Renfield-st., Glasgow.
Macintosh, C. & Co., Cambridge-st., Manchester.
Malloch, McDougall, 90, Queen-st., Glasgow.
Mason, W. M. G. & Co., 19, Waterloo-st., Glsw.
Midland India Rubber Co., Ladywood works, 89, 90 & 91, Ryland-st. North, Birmingham.
Moseley, David & Sons, Chapel-field Works, Ardwick, Manchester.
Moulton, S. & Co., Bradford-on-Avon, Wilts.



North British Rubber Compy., Castle Mills, Edinburgh, and 6, Charlotte-st., Manchester.

Digitized by Google

India Rub. & Gutta Per. Manfs.—*continued.*

Northern India Rubber Co., So. Retford, Notts.
Quin, Jas. & Co., 34, St. Enock-square, Glasgow.
Robertson, Peter, 32, Queen-st., Glasgow.
Tasker, Sons & Co., 32, Angel-st., Sheffield. *See index to advertisers.*
Thompson, Samuel, Machine Works, Liversey-st., Manchester. Vulcanized.
Thornton, Currie & Co., 47, Jamaica-st., Glasgow.
Turner, T. B. & Co., 6, York-st., Glasgow.
Warne, Wm. & Co., 20, Union-st., Glasgow.

India Rubber and Gutta Percha Merchants and Dealers.

F.—Caoutchouc (Fab. et Marchands de).
G.—Indiarubber—Fabr. und Händler.

Adam, W. Jas. & Co., 196, St. Vincent-st., Glasw.
Baird, Arch. & Son, 67, Robertson-st., Glasgow.
Binney & Son, 50, W. Howard-st., Glasgow.
Blacklock, Goudie & Co., 69, Jamaica-st., Glsw.
Campbell, Achnach & Co., 25, Jamaica-st., Glsw.
Caster Rubber Co., 71, Finnieston-st., Glasgow.
Clydesdale Rubber Co., 58, Gordon-st., Glasgow.
Colley, Francis & Sons, 86, Market-place; 8, Norfolk-st., and Meersbrook Tannery, London-road South, Heeley, Sheffield.
Dempster, Moore & Co., 49, Robertson-st., Glsw.
Dickson & Co., 33-35, Lowgate, Hull.
Donald, J. & Son, 42, Cadogan-st., Glasgow.
Easton, Jas. & Co., 17, Oswald-st., Glasgow.
Hewitt, C. E., 8, Chapel-lane, Hull.
India Rubber, Gutta Percha and Telegraph Works Co., Ltd. (The), 20, Dixon-st., Glasgow.
Johnson & McBean, 4, Wellington-st., Glasgow.
Lang, R. G., 29, Waterloo-st., Glasgow.
Lennard, G. H., 8 & 21, St. John-st., Hull.
Loudon Bros., 111, Bothwell-st., Glasgow.
Maclellan, P. & W., 127 & 129, Trongate, Glsw.
MacKay & Co., T. W., Stockton-st., Middlesbro'.
Mallock, McDougall & Co., 90, Queen-st., Glasw.
Mason, W. McG. & Co., 19, Waterloo-st., Glasw.
McLay, Alex. & Co., 83, Jamaica-st., Glasgow.
McLean, A. & Co., 155, Canning-st., Glasgow.
McLellan, Geo. & Co., 55, Robertson-st., Glasw.
Mosley, D. & Sons, 57, Miller-st., Glasgow.
North British Rubber Co., 10-15 Oswald-st., Glsw.
Orr, John, 13, Brown-st., Glasgow.
Philip, Geo. E., 19, Waterloo-st., Glasgow.
Ramage & Whitehead, 30, Cadogan-st., Glasgow.
Reid & Cook, 4, Germiston-st., Glasgow.
Robertson, Peter, 32, Queen-st., Glasgow.
Smith, Alex., 20, Dixon-st., Glasgow.
Somerville, W. 34a, Belvoir-st., Leicester.
Stewart, John, 76, Wilson-st., Glasgow.
Thompson, R. B., 73, 75, Stockwell-st., Glasgow.
Thompson, Currie & Co., 43, 45 & 47, Jamaica-st., Glasgow.
Verel, Julien James, 179, W. George-st., Glsw.
Walker, J. S., 77, Queen-st., Glasgow.
Wallace, John, 15, Robertson-st., Glasgow.
Watt, Chas. & Co., 30, W. George-st., Glasgow.
Wheeldon, John & Co., 15, High-st., Sheffield.
Wilson, W. A. 156, James-st., Bridgeton-cross, Glasgow.

Insulator Manufacturers.

F.—Isoloirs (Fab. d')
G.—Isolatoren-Fabrikanten.

Birmingham India Rubber Company, New-st. & Charles Henry-st., Birmingham.
Bourne, Jos. & Son, Denby Pottery, near Derby.
Lewis, J. Slater, 28, Hamilton-st., Birkenhead.
MALING, C. T., Ford Pottery, Newcastle-on-Tyne. London Sample Rooms, 20, Bartlett's-buildings, Holborn-circus, E.C.
PEARSON, JAS., Whittington-moor Potteries, near Chesterfield. London Sample Rooms, 20, Bartlett's-buildings, Holborn-circus, E.C.
Tasker, Sons & Co., 32 Angel-st., Sheffield. *See index to advertisers.*

Inventors—Electrical.

F.—Inventeurs—électriques.
G.—Bureau zur Ausnützung von Erfindungen.

Jamieson, Andrew, C.E., F.R.S.E., &c., *Principal*, College of Science and Art, Glasgow.

Iron Founders.

F.—Fondeurs de fer.
G.—Eisengiessereien.

Appleby & Co., Renishaw Iron Works, Renishaw, Chesterfield.
Baker, R., 16, Lionel-st., Birmingham.
Banner, E., Star Iron Works, Wolverhampton.
Beesley, D. & Co., 89, Dartmouth-st., B'ham.
Bennett, George & Co., Sheaf Furnaces, Station-road, Sheaf-st., Sheffield.
Bragg & Undwinter, 22, Cumberland-st., B'ham.
Brightside Foundry Co., Newhall-road, Sheffield.
Broadhurst, David, 18, Hatherton-st., Walsall, Birmingham.
Brown, John & Co., Ltd., Atlas Steel and Iron works, Savile-st. east, Sheffield.
Brown, John, Wicker-arches, Walker-st., Sheffield.
Burrows, S. H. & Son, South Yorkshire Iron works, Attercliffe, Sheffield.
Clarke, Thomas & Son, Bridge Foundry, Carlton-road, Attercliffe, Sheffield.
Cochrane, John, Barrhead, Scotland.
Corbitt, William & Co., Ltd., (Edward Bagaley Williams, managing director), Masbro' works, Masbro', Rotherham.
Corker, John & Richard, Foundry-st., Midland-road, Masbro', Rotherham.
Darwin & Co., Queen's Foundry, 108, Queen-st., Sheffield.
Davidson, James S., The Ginns Engine works, Whitehaven.
Edwards, Job & Co., Wednesbury, Birmingham.
Ellis, J. C. & J. S. Norfolk Foundry, Leadmill-st., Sheffield.
Ensor, William B., Eagle Foundry, West Bromwich, Birmingham.
Firth, Thomas & Sons, Whittington Iron works, Chesterfield; Norfolk works, Savile-st. east, Sheffield; and London.
Fearn, John & Co., 218, Allen-st. & 2, Leicester-st., Sheffield.

Digitized by Google

Iron Founders—*continued.*

Fisher, Stephen & Co., Pelham works, Mitchell-st., Sheffield.
Fisher, William, Wicker-arches, Walker-st., and 46, Johnson-st., Sheffield.
Fowler, John, Don Foundry, Attercliffe-bridge, Sheffield.
Fox & Co., 29 & 31, Carver-st., Sheffield.
Francis, Thomas & Co., Lion Nail works, Sydenham-road, Sparkbrook, Birmingham.
Gillimore & Taylor, Windsor Iron Foundry, Windsor-st., Birmingham.
Gee, Thomas & James, 208, Cheapside, B'mham.
Gimson & Co., Vulcan-st., Leicester.
Godfrey, George & Co., 73 & 74, Watery-lane, and Glover-st., Birmingham.
Goodwin, Jas. & Co., Ardrossan, Johnstone, Motherwell.
Grant, Ritchie & Co., Kilmarnock.
Green, William & Co., Norfolk Foundry, Ecclesfield, and 4, Corporation-st., Sheffield.
Grice, William & Co., Lower Fazeley-st., B'ham.
Griffin Foundry Co., Stephenson-st., Birmingham.
Hands, John & Sons, Cardigan works, Belmont-row and A B row, Birmingham.
Hart, Son, Peard & Co., Grosvenor-st. west, Birmingham.
Hassall & Singleton, Phœnix Foundry, Freeman-st., Moor-st., Birmingham.
Heslop, John, St. Andrews, Auckland, Bishop Auckland.
Hicks, Robert, 21 & 22, Goodrick-st., B'mgham.
Hill & Son, Albion works, Wolverhampton.
Hill, Wm. & Hen., Phillips'-st., Aston-brook, Birmingham.
Hill, W., Phillips'-st., Aston-road, Birmingham.
Hipkins, Edward, Regent Foundry, Allcock-st., Deritend, Birmingham.
Holder, Joseph, River-st., Deritend, Birmingham.
Hope Foundry and Engineering Co. (The), West Bromwich, Birmingham.
Hope, Henry, 55, Lionel-st., Birmingham.
Horsley Co., Ltd. (The), Tipton, Staffordshire.
Impey, Wm., Atlas Foundry, Bridge-st., B'ham.
Janson, C., Son & Co., Darlington.
Jones & Attwood, Stourbridge.
Jones, George, 90, Lionel-st., Birmingham.
Kenrick, Archibald & Sons, West Bromwich, Birmingham.
Ketley (J.H.) Glenday & Co., Victoria- buildings, Corporation-st., Birmingham.
Law, James & Co., 39, Washford-road, Attercliffe, Sheffield.
Lees & Hill, 78 & 79, New Canal-st., Birmingham.
Lockerbie & Wilkinson, Exeter-st., Holloway-head, Birmingham.
Lones, Vernon & Holdon, Sandwell works, Smethwick, Birmingham.
Longden & Co., Phœnix Foundry, Furnace-hill, Sheffield.
Mallinder Brothers, Porter Foundry, Sylvester-gardens, Sheffield.
Marshall, Isaac & Sons, 74, Bradford-st., B'ham.
Matchett, Frederick & Harry, 21, George-st., Parade, Birmingham.

Iron Founders—*continued.*

Matthews, Chas. & Co., Cleveland-road, Wolverhampton.
McCallum, William Cornelius, 231 & 232, Aston-road, Birmingham.
Micklethwait, Wm. Henry & Co., Clough works, Clough-road, Rotherham.
Morris, John, Ladywood Iron Foundry, Great Tindal-st., Birmingham.
Muirhead, James, Cart Forge, Glasgow, Iron and Steel Forgings.
Nalsh, Arthur John & Sons, 21, 22 & 23, Coleshill-st., Birmingham.
North & Co., 30 & 31, Lower Loveday-st., B'ham.
Northwoods, Upper Dean-st., Pershore-st., B'ham.
Onions, John C., Offices, Bradford-st., Iron Foundry, Charles Henry-st., Birmingham.
Osborne, J., 155, Great Charles-st., Birmingham.
Oxley Brothers, Union Foundry, Mowbray-st., Sheffield.
Palmer, W. R., Ltd., 91, Bagot-st.; 3, Waterloo-st., and 5, Great Brook-st., Birmingham.
Parsons, David & Sons, Carbyne Hall, New Furnaces, Pinsnest, near Dudley.
Pattison, Davidson & Spencer, Hexham Iron works, Hexham.
Pearson, Emanuel & Co., 25, Change-alley, Sheffield.
Pedley, Thos., 72, Walsall-st., Willenhall.
Platts & Thompson, Challenge works, Arundel-st., Sheffield.
Powell, Henry, Berners-st., Lozells, Birmingham.
Preston & Bishop, Clement-st., Birmingham.
Price, Robert & Co., Slough-lane, Winson-green, Birmingham.
Robey & Co., Globe works, Glasgow.
Savile Street Foundry and Engineering Co., Ltd., Savile-st. east, Sheffield.
Shaw, G., 65, Station-st., Swinton, Rotherham.
Shaw, Walter, 16 & 17, Park-st., Birmingham.
Sheepbridge Coal and Iron Co., Ltd., (John William Tankard, manager), Norwood, Killamarsh, and at Sheepbridge, Chesterfield.
Shepherd, Benjamin, 14, Dixon-lane, Sheffield.
Short, Thos., Bridge Foundry, and Lionel-st., Birmingham.
Smith, E. & Co., Wednesbury, Birmingham.
Smith, George & Co., Imperial-chambers B. Colemore-row, Birmingham.
Smith, Samuel, Rolfe-st., Smethwick, B'ham.
Steade, Thos., 34, Cemetery-road, Sheffield.
TAYLOR & CHALLEN, Constitution-hill, Birmingham.
Taylor & Farley, Summit Foundry, West Bromwich, Birmingham.
Taylor, John, Fawdry-st., Smethwick, B'ham.
Tildesley, J., Cresent works, Willenhall.
Troman, Timothy, 197, Heneage-st., Birmingham.
Turnell, George Miles, 94, Aston-road, B'ham.
Walker, Eaton & Co., 3, Spital-hill, Sheffield.
Walker, William Joseph, Neville-st., Masbro', Rotherham.
Ward, George & Co., Damstead works, Dronfield, Sheffield.

Digitized by Google

Iron Founders—*continued.*

Ward, William & Co., Great Bridge, Tipton, Birmingham.
Wasteneys, John & Co., Eckington, Chesterfield.
Watts, J. & Co., Soho Foundry, Soho, B'ham.
Wearing, George, Carter's Green Foundry, West Bromwich, Birmingham.
Wilson & Shaw, Eagle Foundry, Baldwin-st., Attercliffe, Sheffield.
Winder Bros., Royd Works, Tinsley-road, Sheffield.
Wragg, George, jun., Clough-st., Masbro', Rotherham.
Wright, George & Co., Burton Weir, Brinsworth-st., Masbro', Rotherham.
Yates, Haywood & Co. & the Rotherham Foundry Co., Limited (George Harris Haywood, managing director), Effingham Works, George-st., Masbro', Rotherham.
Yates, John, 5 & 6, Digby-st., Aston-road, Birmingham.

Iron Manufacturers.

F.—Fer (Fab. de)
G.—Eisen—Fabr.

Birmingham Battery & Metal Co. (Wm. Gibbins, manager), Selly Oak, Birmingham.
Cammell, Charles & Co., Limited (Edwin Leach, commercial manager; William Naylor, works manager), Yorkshire Steel and Iron Works, Penistone and Cyclops Works, Savile-st., Sheffield.
District Iron & Steel Co., Brasshouse-lane and Excelsior Works, Grove-lane, Smethwick, Birmingham.

Iron Tank Manufacturers.

F.—Réservoirs en fer (Fab. de)
G.—Eiserne Bassins.

Cleveland Bridge & Engineering Co., Limited, Bank Top, Darlington.
Davies Bros. & Co., Crown Works, W'hampton.
Dawson & Nunneley, Black Bull-st., Hunslet, Leeds.
Grice, William & Co., Lower Fazeley-st., and Floodgate-st., Birmingham.
Horton, J. & W., Etna Works, Smethwick, Birmingham.
Horton, Thomas, Vittoria-st., Smethwick, B'ham.
Janson, C., Son & Co., Darlington.
Keay, E. C. & J., Victoria-bldgs., Corporation-st., Birmingham.
Ludlow Bros., 7, Palmer-st., Birmingham. Manufacturers of every description for oil, &c.
Preston, William & Co., Boiler Works, Walter-st., Nechells, Birmingham.
Tildesley, Jesse, Crescent Iron Works, Willenhall, Staffordshire.
Yates, Wm. & John, Canal Foundry, Blackburn.

Iron and Steel Manufacturers.

F.—Fer et Acier (Fab. de)
G.—Eisen- und Stahl- Fabr.

Abell & Williams, Frodsham-st. Bridge, Chester.
Andrew, J. H. & Co., Toledo Steel Works, Sheffield.
Armstrong, Joseph & Co., Pothouse-lane, Attercliffe-common, Sheffield.
Atkins, William & Co., Reliance Steel Works, Attercliffe, Sheffield.
Baird, A. & Son, 67, Robertson-st., Glasgow.
Banham, John & Sons, 53, Carver-st., Sheffield.
Banks, Joseph & Co., 30, Hope-st., Glasgow.
Bell, C., 29, Waterloo-st., Glasgow.
Bennett, George & Co., Sheaf Furnaces, Station-road, Sheaf-st., Sheffield.
Brown, John, Wicker Arches, Walker-st., Sheffield.
Christie Bros., 133, St. Vincent-st., Glasgow.
Dempster, Moore & Co., 49, Robertson-st., Glasgow.
Donald, John & Son, 42, Cadogan-st., Glasgow.
Dunderdale, C., 119, Gt. Vincent-st., Glasgow.
Dyson, Joseph & Co., Mill Bank Steel Works, Birch-road, Attercliffe, and at Tilt Mills, Thurgoland, Sheffield.
Dyson, Hy., Mill Bank Steel Works, Attercliffe, Sheffield.
Fergus, J. & Co., 58, York-st., Glasgow.
Flockton, Tompkin & Co., Newhall Steel Works, Attercliffe, Sheffield.
Fox & Co., 29 & 31, Carver-st., Sheffield.
Hartley, John & Co., Newhall Wire Mills, Newhall-road, Attercliffe, Sheffield.
Hood, W. & W., 72, George-square, Glasgow.
Hope, J. A., 24, Bath-st., Glasgow.
Huntsman, B., Church-st., Attercliffe, Sheffield.
Hutcheson & Co., 9, Oswald-st., Glasgow.
Ibbotson Bros. & Co., Limited, Globe Iron and Steel Works, Sheffield.
Jessop, William & Sons, Limited, Brightside Works, Brightside-lane, Sheffield.
Johnstone, Jas., 51, Gt. Vincent-st., Glasgow.
JONAS & COLVER, Continental Works, Bessemer-road, Attercliffe, Sheffield.
Jowsey Bros. & Co., Tyne Steel & File Works, Washford-road, Attercliffe, Sheffield.
Laing, R. G., 29, Waterloo-st., Glasgow.
Lindsay, Thos., 82, Clyde-st., Glasgow.
Llewellins & James, 28, Bath-st., Glasgow.
Mason, W. McG. & Co., 19, Waterloo-st., Glasgow.
M'Geoch, Wm. & Co., 108, Argyle-st., Glasgow.
McLean, A. & Co., 155, Canning-st., Glasgow.
Muirhead, A. E., Crossmyloof, Glasgow.
Murdoch, R. & Co., 20, Robertson-st., Glasgow.
Muxlow & Knott, Hope Steel Works, Pothouse-road, Attercliffe-common, Sheffield.
Newbould, Samuel & Co., Limited, Bridge Field Works, 70, Newhall-road, Brightside-lane, Sheffield.
Nibb, C., 33, Glover-st., Birmingham.
Reid & Cook, 2, Germiston-st., Glasgow.
Riddel & Co., 49, Jamaica-st., Glasgow.

Digitized by Google

Iron & Steel Manufacturers—*continued.*

Robertson, M. W. & Co., Fleming-st., Duke-st., Glasgow.
Sanderson Bros. & Co., Limited, 134, Newhall-road; Iron Wharf, 6, Pinfold-lane, Attercliffe, and Darnall-road, Sheffield.
Shipman, Jabez & Co., 128, Carlton-road, Attercliffe, Sheffield.
Steel Co. of Canada, Limited, 115, St. Vincent-st., Glasgow.
Stewart, John, & Co., 28, 30, 32, Oswald-st., Glasgow.
Stewart, Thos. & Co., 45, Hope-st., Glasgow.
Sykes, Robert, Market-st., Stalybridge.
Thorburn, Thos., 31, St. Vincent-st., Glasgow.
Turton, Thomas & Sons, Sheaf Works & Spring Works, Maltravers-st., Sheffield.
Walker, T. W. & J., 21, W. Nile-st., Glasgow.
Watt, C. & Co., 30, W. George-st., Glasgow.
Whitton, H., 45, Washford-road, Attercliffe, Sheffield.
Willis, W. C., 4, North Court, Royal Exchange, Glasgow.
Wilson, Wm. & Alex., 156, James-st., Bridgeton Cross, Glasgow.

Iron and Steel Merchants.

F.—Fer et d'Acier (Marchands de)
G.—Eisen- und Stahl-Händler.

Brinton & Son, 153, Gt. Charles-st., B'ham.
Edwards & Co., Walsall, near Birmingham.
Henderson & Glass, 18, 20 & 22, Vulcan-st., Liverpool.
Kerr, Jas. & Co., 154, W. George-st., Glasgow.
SUTTON & ASH, Snow Hill, Birmingham.
Warden, Thomas, 12, Gt. Charles-st., B'ham. Steel and general.

Ivory Turners.

F.—
G.—Elfenbein-Drechsler.

Allen, George, Morrison's-court, Groat Market, Newcastle.
Irwin, John, Fletcher's Entry, Newcastle.

Lamp (Electric) Post Manufacturers.

F.—Lampadaires (Fab. de).
G.—Lamppfosten-Fabrikanten.

Abbot's Foundry Company, Abbot's Iron Works, Falkirk.
Alley & Mc Lellan, 33, Virginia-st., Glasgow.
Borwell, J., Britannia Foundry, Burton-on-Trent.
Brown, J., Derby-st., Bolton.
Buchanan, J. & Son, 77, Brasenose-rd., Liverpool.
Butt, J. M. & Co., Kingsholm Iron Works, Gloucester.
Crawford, J. & Ebenezer, Eage Foundry, Port Dundas, Glasgow.
Cockburn, M. & Co., Gowan Bank Iron Works. Falkirk.
Duckering, C., Rosemary-lane, Lincoln.

Lamp (Electric) Post Manufac.—*continued.*

Edington, T., & Sons, Garscub-road, Glasgow.
Finlay & Davidson, Victoria-st., Port Eglington, Glasgow.
Holmes, W. C. & Co., Bradford-road, Huddersfield.
Isles, J., Prospect Foundry, Stanningley, Leeds.
Laidlaw, R., & Son, 147, East Milton-st., Glasgow, & Simon-square, Edinburgh.
Maclaren, R. & Co., Canal-st., Port Eglington, Glasgow.
MacLellan, P. & W., 129, Trongate, Glasgow.
McCrossan, J., 3, Edgar-street, Scotland-road, Liverpool.
McDowall, Steven & Co., 142, North Woodside-road, Glasgow.
Mitchell & Carlaw, 258, Castle-st., Glasgow.
Musgrave, J. & Sons, Globe Iron Works, Bolton.
Nelson, J. & S., 47, Briggate, Leeds.
Oak Foundry Company, Black-st., Glasgow.
Oakes, J. & Co., Alfreton Iron Works, Alfreton.
Richardson, Ellson & Co.. Lower Ford-st., Coventry.
Robinson, H., Stewkins Iron Works, Stourbridge.
Scott, W., & Maxwell, Tranmere Foundry, Birkenhead.
Shott's Iron Co., 37, West Nile-st., Glasgow.
Smith Bros., Abbey-st., Derby.
Smith, G. & Co., Sun Foundry, Glasgow.
Stewart, D. Y. & Co., Charles-st., St. Rollox, Glasgow.
Weber, P. E. & Co., 77, St. Anne-st., Liverpool.
Whyte & Kerr, Mary-hill, Glasgow.
Williams' Patent Railway Co., Limited (The), Glasgow.

Lathe Makers (Electricians').

F.—Tours électriques (Fab. de).
G.—Electrische Drehbanken.

TAYLOR, CHAS., Edmund-st., Birmingham.
Lindsay, J. B. & Co., 30, George-sq., Glasgow.
McAllum, C. O., Windsor-terrace, Newbiggin, Morpeth.

Lead Manufacturers & Mine Owners.

F.—Plomb (Fondeurs de).
G.—Blei-Werke und Fabriken.

Alston Moor Mining Company, Alston-moor, Cumberland.
Anderson R., & Co. (sheet), 72, Duke-st., Liverpool.
Beaumont, W. B., Allen Smelt Mill, Allendale.
Berger, Lewis & Sons, Limited; mills, Leadmill-road; office, 69, Shoreham-st., Sheffield.
Burr, G., Lead Works, Shrewsbury.
Byers, J. & Sons, I'Anson-square, Darlington.
Byrn Dyfi Lead Mining Company, Limited, 15, Lord-st., Liverpool.
Cambrian White Lead Co., Limited, Brymbo, Wrexham.
Campbell, T. B. & Co., 61, Constitution-st., Leith.
Campbell, T. B. & Sons, 29, Wellington-st., Glasgow.

Digitized by Google

Lead Manfs. & Mine Owners—*continued.*

Campbell, T. B. & Co., 8, Picardy-place, Edinburgh.
Cookson & Co., Queen-st., Newcastle-on-Tyne.
Craig & Rose, 110, Wellington-st., Glasgow.
Derwent Lead Mining Co., Ramshaw, Hunstanworth, Riding Mill, Durham.
Dickson, Wm., 67, Garngad-road, Glasgow.
Eckersley Bros., 103, Lees-road, Oldham.
Enthoven, H. J. & Sons, 20, St. Vincent-place, Glasgow.
Foster, Blackett & Wilson, C., Lombard-st., Newcastle-on-Tyne, and Tyne Lead Works, Hebburn.
Gibson & Mathie, 49, Brown-st., Glasgow.
Gordon, A. M. & Co., 59, Bridgewater-st., Liverpool.
Gartrix, S., Junr. & Brother, Philips's, Park-road, Bradford.
Hatch, J. R., 83, Pitt-st., Glasgow.
Healeyfield Lead Mining Company, Healeyfield, Castle-side, Durham.
Heaps, J. G. & T., Leeds.
Henderson, Chas. & Co., 9, York-buildings, York-st., Glasgow.
Hirst and Cooke, Baywell Street Lead Works, Hull.
Holman, Rogers, Michell & Co., City-buildings, Old Hall-st., Liverpool.
Ismay, John, & Co., Northumberland Lead Works, Newcastle-on-Tyne.
James & Co., Ouseburn Lead Works, Newcastle-on-Tyne.
James & Rosewall (sheet), Octagon-st., Plymouth.
Kitchen, J. G., 22, Paisley-st., Liverpool.
Lang, W., Junr. & Co., Cornwall-st., Glasgow.
Locke, Blackett & Co., St. Anthony's, Newcastle-on-Tyne.
Merrikin, W. S., Trippett Works, 23, Trippett-st., Hull.
Miller, Alex. Jnr. & Co., 50, Kerr-st., Glasgow.
Pontifex & Wood, 33, Hope-st., Glasgow.
Primrose & Co., Corporation-st., Sheffield; and Carr-lane, Hull.
Quirk, Barton & Co., Mersey Lead Works, Bankhall, Liverpool.
Rawson, Barker & Co., 69, Shoreham-st., Sheffield.
Roddrop Fell Mining Co., Alston-moor, Cumberland.
Stevenson, W. & Co., 74, Brown-st., Glasgow.
Storer, David, & Sons, 58 to 84 & 41 to 73, Sydney-st., Glasgow.
Turnbull, Stewart & Co., 47, Oswald-st., Glasgow.
Vivian & Sons, 4, Crooked-lane, Liverpool, and Whiterock Lead Works, Swansea.
Walker, J., Parker & Co., 110, Cheapside-st., Glasgow.
Walkers, Parker, Walker & Co., Low Elswick, Newcastle-on-Tyne.
Walton, J. & Co., Bellihope Lead Works, Frosterly, Darlington.
W. B. Lead Office, 46, Northumberland-st., Newcastle-on-Tyne.

Lead Merchants.

F.—Plomb (Marchands de)
G.—Blei-Händler.

Anderson, R. & Co., 72, Duke-st., Liverpool.
Appleton, Mrs., 146, Bilston-st., Wolverhampton.
Berger, Lewis & Sons Limited (pig); mills, Leadmill-road; office, 69, Shoreham-st., Sheffield.
Bradley & Hall, 32, London-road, Sheffield.
Briggs Bros., 1, Belgrave-gate, Leicester.
Cox Bros. & Co., Morledge, Derby.
Davis, J., 381, High-st., West Bromwich.
Dugard Brothers, Bridge-st. West, & Lower-Hospital-st., Birmingham.
Dunn & Broughall, 142, High-st., West Bromwich.
Edwards, S. A. & Co., 6, Gt. Charles-st., B'ham.
Gray, Wm. & Co., 11½, West-st., Hull.
Hawkes, J. & O. C., 128 & 129, Bromsgrove-st., Birmingham.
Henderson, G., Hexham.
Holman, Rogers, Michell & Co., City-buildings, Old Hall-st., Liverpool.
Howard, Robert & Co., Deritend, Birmingham.
Marin, Edward, 38, Quayside, Newcastle.
Marlow, Edward, 256, New Town-row, B'ham.
Norton, J. & Son, 117 & 119, Queen-st., Sheffield.
Norton, Charles Henry & William, 52, Silver-street-head, Sheffield.
Pearce, William, Bridge-st., Broad-st., B'ham.
Primrose & Co., Corporation-st., Sheffield; and Carr-lane, Hull.
Shaw, J., 59, Park-st., Walsall.
Sperrey, W., Via Gillia Lead Works, Bonsall, Derby.
Stock, Son & Taylor, Gas-st., Broad-st., B'ham.
Walker, Jas., Parker & Co., 106 to 116, Cheapside-st., Glasgow.
Walker, J. P. & Co., Lead Works, La., Chester.
WILSON, ALFRED E., 102B., Great Charles-st., Birmingham.
Winn, Chas. & Co., 140, Granville-st., B'ham.

Lead Pipe Manufacturers.

F.—Tuyaux de Plomb.
G.—Blei-Röhren.

Alexander, Ferguson & Co., 38, McAlpine-st., Glasgow.
Boag, John & Son, 68, Bath-st., Glasgow.
Brooks & Power, Churchgate, Bolton.
Burr, G., Lead Works, Shrewsbury.
Campbell, T. B., & Co., 8, Picardy-pl., Edinburgh; & 29, Wellington-st., Glasgow.
Cashmore, S., & Co., 42, Victoria-st., Bristol.
Clyde Lead Works, Cornwall-st., Glasgow.
Cox Brothers & Co., Butcher-st., Nottingham.
Eyton, A., 34, James-st., Liverpool.
Foster, Blackett & Wilson, C., Lombard-st., Newcastle-on-Tyne.
Gordon, A. M. C., & Co., 57, Bridgwater-st., Liverpool.
Gould, E., & Co., 4, Cornwall-st., Devonport.

Digitized by Google

Lead Pipe Manufacturers—*continued.*

Hanson, Dale & Co., Colne-rd., Huddersfield.
Henderson, Charles & Co., 9, York-buildings, York-st., Glasgow.
Hirst & Cooke, Railway-st. Lead Works, Hull.
Hutchinson, H., & Son, Berwerley, Pately-bridge, Leeds.
James & Rosewall, Octagon-st., Plymouth.
James, E. Rowe & Co., 192, High-st., Exeter.
Kerwood, S., 32, College-st., Portsea.
Kitchen, J. G., 22, Paisley-st., Liverpool.
Lang, W., Jun., & Co., Cornwall-st., Glasgow.
Locke, Blackett & Co., St. Anthony's, Newcastle-on-Tyne.
Pitt, J., 18, Waingate, Sheffield.
Primrose & Co., Carr-lane, Hull.
Sheldon, Bush & Co., Cheese Lead Works, Crewhole, Bristol.
Smith, B. G., Hope-st., Halifax.
Stevenson, W., & Co., 74, Brown-st., Glasgow.
Sutcliff, W., & Son, Adelaide-st., Halifax.
Turnbull, Steward & Co., 47, Oswald-st., Glasgow.
Walker, J., Parker & Co., 110, Cheapside-st., Glasgow.
Walkers, Parker, Walker & Co., Low Elswick, Newcastle-on-Tyne.

Lead Smelters.

F.—Fondeurs de Plomb.
G.—Blei-Schmelzer.

Ashton, R. H., Hope, Sheffield.
Bagshaw, W., Grindlow, Eyam.
Cookson & Co., Royal Insurance-buildings, Queen-st., Newcastle-on-Tyne.
Dawbarn, W., & Co., 9, Temple, Dale-st., Liverpool.
Derwent Lead Mining Company, Ranshaw, Hustanworth.
Dinning, J., Langley, Haydon-bridge.
Eyam Mining Company, Eyam.
Fairburn, J., Stoney Middleton, Sheffield.
Glover, P., West-bank, Widnes, Lancashire.
Lang, W., Jun., & Co., Cornwall-st., Glasgow.
Locke, Blackett & Co., Wallsend, Newcastle-on-Tyne.
Mill Dam Mining Co., Great Hucklow, Eyam.
Moss, Rake, Mining and Lead Ore Smelting Co., Limited, Bradwell, Derbyshire.
Neville, Druce & Co., 24, Exchange-alley, Liverpool.
Panther Lead Smelting Company, Limited, Avon-st., St. Philip's, Bristol.
Pass, C., & Son, Bedminster Smelting Works, Bristol.
Peak Forest Lead Mining Company, Peak Forest, Chapel-en-le-Frith.
Runcorn Swelting Co. (Jas. Hallows, Manager), Gas-st., Runcorn.
St. Helen's Lead Smelting Company, St. Helen's
Sheldon, Bush & Co., Crewshole, Bristol.
Shuttleworth, J. A. H., Hathersage, Sheffield.
South Wales Lead Smelting & Colliery Company, Limited, Penclawdd, Swansea.

Lead Smelters—*continued.*

Sperrey, W., Via Gillia Lead & Color Works, Bonsall, Derby.
Treffry's Estate, Par, Cornwall.
Vivian & Sons, 7, St. Peter's-square, Manchester.
Weston, Son & Co., 18, Peter-st., Bristol.
Walker, J., Parker & Co., 110, Cheapside-st., Glasgow.
Walkers, Parker, Walker & Co., Low Elswick, Newcastle-on-Tyne.
Wass, Annie, & Son, Lea, Derby.
Wass & Son, Lea Lead Works, Comford.

Lighthouse (Deoptric) Apparatus Manufacturers.

F.—Phares (Fab. d'appareils dioptriques pour les).
G.—Dioptrische Apparate für Leuchtthürme.

CHANCE BROTHERS & CO., Lighthouse Works, Smethwick.
Howarth & Cryer, Bridgman-st., Bolton.
Thompson, Reynolds & Co., Castle Works, Wolverhampton.

Lightning Conductor Manufacturers.

F.—Paratonnerres (Fab. de cable pour).
G.—Blitzableiter-Fabrikanten.

Bailey, W. H. & Co., Essex-st., Salford, M'chester.
Biddell, J. G., 18, King-st., Manchester.
Bishop, W., 7, Thomas-st., Vaughan-st., B'ham.
Blackburn, J., 39, Arkwright-st., Nottingham.
BOLTON, T. & SONS, Broad-st. Metal Works, Birmingham.
Bramham, J., 104, Dale-st., Liverpool.
Burns, Joseph, 6, Comely-park-place, Glasgow.
Callaghan, Wm., 79, Barloch-st., Glasgow.
CUTTING, R. C. & CO., 10, Exchange-arcade, Deansgate, Manchester.
Davies, J. & Co., 51, Tyrrell-st., Bradford.
Davis, J. & Son, All Saints'-works, Derby.
Dixon, Corbitt & Spencer, Teams, Gateshead.
Dixon, I. & Co., Speakland-st., Liverpool.
Dixon, S. & Son, 49, Swinegate, Leeds.
Elliott, Sir George & Co., West Bute-docks, Cardiff.
Field, Henry, Son & Co., 328, St. Vincent-street, Glasgow.
Freeman & Collier, 41, Brook-st., Manchester.
Gardner, John & Co., 47, Salisbury-st., Glasgow.
Gent, J. T. & Co., King Richard's-rd., L'cester.
Goodbrand & Holland, Southall-st., Manchester.
Goodchild, Moir & Co., Overgate, Dundee.
Hall, Ralph, 1, Prince Edward-street, Crosshill, Glasgow.
Harrison, Cox-Walker & Co., Darlington. Vyle's Patent Easily Tested Lightning Conductors.
Hart, Son, Peard & Co. (Contractors to H. M. War Dept.), Grosvener-st.-west, Birmingham.
Hibbert & Co., 56, Granby-row, Manchester.
Hurney, J., 10, Westfield-terrace, Sheffield.
Inman, Stones & Co., Victoria-mills, Brighouse.
Jenkins, W., 28, South-parade, Leamington.

Digitized by Google

Lightning Conductor Manfs.—*continued.*

Johnson, R., Clapham & Morris, 24, Lever-st., Manchester; and 23, Cheapside-st., Liverpool.
Lincoln, W. & Co., 13, Dundas-st., Glasgow.
Markham Brothers, Westgrove-st., Bradford.
Massingham, T., 6, Bigg-market, Newcastle-on-Tyne.
Morton, F. & Co., Limited, 18, George-sq., Glasgow.
Nelson, J. & Sons, Doncaster-road, Wakefield.
Nelson, Jas. & Sons, Leeds.
Newall, R. S. & Co., 36, Waterloo-road, L'pool.
Newall, R. S. & Co., 68, Anderston-quay, Glasgow.
Parkinson, T., Canterbury-st., Blackburn.
Peet, G., 45, Bold-st., Liverpool.
Pennycook, C. H., Sons & Co., Catherine-lane, Glasgow.
Pennycook, C. H. & Co., 176, Rotten-row, Glasgow.
Pollock, And. S., 489, St. Vincent-st., Glasgow.
Reddle, J. G., King-st., Manchester.
Richardson, Ellson & Co., Lower Ford-street, Coventry.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*
Shaw, J., Soho-st., Ecclesall-road, Sheffield.
Sothern, S., 25, Henblas-st., Wrexham.
Taylor & Parsons, Paradise-street, Copper-lane, Bradford.
Tonks, W. & Sons, 201, Mosely-st., Birmingham.
Vyle, S., 22, Borough-road, Middlebrough.
Williams, D. & Son, Frodsham-st., Chester.

Lubricator Manufacturers.

F.—Lubricateurs (Fab. de).
G.—Lubricator-Fabrikanten.

Whitehouse & Co., Tipton Hall Chain Works, Staffordshire.

Machine Manufacturers and Machinists.

F.—Machines (Constructeurs de).
G.—Maschinen-Constructeure.

CROSSLEY BROTHERS (LIMITED), Great Marlborough-st., Manchester. Makers of the "Otto" Gas Engine.
Farrar, J. B., Globe Works, Halifax.
Fawcett, Thomas C., Old Victoria Foundry & Burmantoft's Foundry, Manor-road, Cromwell-st., Leeds.
Heap, Joshua & Co., Ashton-under-Lyne.
Heap, Wm. & Co., Aston-under-Lyne.
Makin, Jas. Henry, Cupola Works, Sheffield.
Robinson, A. E., 29, Princess'-st., Manchester.
Ruston, Proctor & Co., Sheaf Iron Works, Lincoln.
STAFFORDSHIRE WHEEL & AXLE CO., Heath-st.-south, Spring-hill, Birmingham.
Wilcock, Mark, Sowerby-bridge, Yorkshire.

Machine Tool Makers.

F.—Machines Outils (Fab. de).
G.—Maschinen-Werkzeug.

Allen, Edgar & Co., Well Meadow Steel Works, Sheffield.
Asquith, W., Highroad Well Works, Halifax.
Beck & Candlish, Providence Works, Brown-st., Sheffield.
Berry, Francis & Sons, Sowerby-bridge, Halifax.
Booth, Geo. & Co., Back-st., Halifax.
Borley, W., Suffolk-place, Arkwright-street, Nottingham.
Broome & Whaley, Buxton-road, Macclesfield.
Buck & Watkins, 54A, King-st.-west, Manchester.
Butterfield, F. & J. & Co., Midland Tool Works, Keighley.
Calvert, Reuben, Roebuck-yard, Northgate, Halifax.
Crossley, John & Co., Halifax.
Davis & Primrose, Etna Works, Leith.
Esterbrook, Allcard & Wild, Albert Works, Penistone-road, Sheffield.
Furnival & Co., Reddish Iron Works, near Manchester.
Harvey, Robert & Co., Park-grove Iron Works, Glasgow.
Holdsworth, Wm., Leeds New Foundry, Black Bull-st., Leeds.
Kitching Brothers & Co., Atlas Works, Leeds.
Lee & Hunt, Arkwright Works, Nottingham.
Matthews, R. A., Nottingham.
Maud & Turner, Perseverance Works, Halifax.
Neil, Charles, 72, Bridge-st., Sheffield.
Osborn, Samuel & Co., Wicker, Brookhill & Blonk-st., Sheffield.
Oxley, Edwin, J., Port-st., Manchester.
Parker & Balme, Stead-st., Halifax.
Phillips, Chas. D., Emlyn Works, Newport, Mon.
Reside, T., Rastrick, Brighouse.
Rogerson & Cooper, back of 32, Garden-street, Sheffield.
Scriven & Co., Leeds.
Shepherd, Hill & Co., Leeds.
Smith & Coventry, Gresley Ironworks, Ordsall-lane, Salford, Manchester.
Smith & Wilshaw, Hope-st., Gibbet-st., Halifax.
Spafford, A. & Co., Imperial Works, Brow-st., Sheffield.
Spencer, J. & Co., Atlas Works, Keighley, York.
Tannett, Walker & Co., Leeds.
TAYLOR, CHARLES, Edmund-st., B'ham.

Machine Strap Fastener Makers.

F.—Agraffes de courroies (Fab. de).
G.—Maschinenriem-Halter.

Parsons, R., 116, Steelhouse-lane, Birmingham.
Reddaway, F. & Co., Cheltenham-st., Pendleton, Manchester.

Digitized by Google

Magnetic Curative Appliance Manufacturers.

F.—Appareils médicaux (Fab. d')
G.—Magnetische Heilapparate.

BAKER, GEORGE, 28, Broad-st., B'ham.
Campbell, John & Co., 20, Wheeldon-st., Sheffield.
Gray, Joseph & Son, Truss Works, 51, New George-st., London-road, Sheffield.
LANCASTER, JAS. & SON, 37, Colmore-row, Birmingham.
MORRIS, TIMOTHY, 3 & 4, Market-st., B'ham.
Morrison, J. D., Villavita, 27, Grange-road, Edinburgh.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*

Magnet Manufacturers.

F.—Aimants (Fab. d').
G.—Magnete—Verfertiger.

Davis, J. & Son, All Saints' Works, Derby.
HADFIELD'S STEEL FOUNDRY CO., Attercliffe, Sheffield.
JONAS & COLNER, Continental Steel Works, Sheffield.
PERRY, THOMAS, 381 & 146, Coventry-road, Birmingham.
Rhodes, Hiram Fredk., 123, Ledsam-st., B'ham.

Magnetic Steel Manufacturers.

F.—Acier magnétique (Fab. d')
G.—Stahl für Magnete—Fabr.

Flockton, Tompkin & Co., Newhall Steel Works, Sheffield.
HADFIELD'S STEEL FOUNDRY CO., Attercliffe, Sheffield.
JONAS & COLVER, Continental Steel Works, Sheffield.
Shaw, H. & Son, 45 & 47, Monmouth-st., Shffld.

Manufacturing Electricians.

F.—Machines électriques (Fab. de).
G.—Fabrikanten von electrischen Apparaten.

Tasker, Sons & Co., New Station-road, Sheffield.
Harrison, Cox, Walker & Co., Darlington.
Walker, Sidney, F. & Oliver, 195, Severn-road, Canton, Cardiff.
Davis, J. & Son, All Saints' Works, Derby.

Mathematical Instrument Makers.

F.—Instruments de mathematique (Fab. d').
G.—Mathematische Instrumente—Verfertiger.

Bailey, R., 14, Bennett's-hill, & 102, Broad-st., Birmingham.
Bell, Henry, 70½, Gt. Clyde-st., Glasgow.
Black, Thomas, 12, Netherthorpe-pl., Sheffield.
Blackwood, H. & Co., 210, Buchanan-street, Glasgow.
Brown, Hugh, 213, Argyle-st., Glasgow.

Mathematical Instrument Mkrs—*continued*

Brown, James, 76, St. Vincent-st., Glasgow.
Carlaw, David, 54 & 56, Ropework-la., Glasgow.
Chadburn Bros., Albion works, 30, Nursery-st., Sheffield.
Corbett, Thomas & Son, 74, Spencer-st., B'ham.
Coyne, John, 80½, Geach-st., Birmingham.
Cutts, I. P., Sutton & Son, 51 to 57, Division-st., & 60, High-st., Sheffield.
Davis, J. & Son, All Saints' Works, Derby.
Davison, Alex., 77, London-st., Glasgow.
Dobbie, Alex., 24 & 25, Clyde-place, Glasgow.
Downie & M'Clure, 83, Pitt-st., Glasgow.
Galleti, John, 24, Argyle Arcade, Glasgow.
Gardner & Co., 53, Buchanan-st., Glasgow.
Gear, Henry, 54, Buckingham-st., Birmingham.
Hilliard, W. B. & Sons, 65, Renfield-street, Glasgow.
Kelso & Tod, 43, Union-st., Glasgow.
LANCASTER, JAS. & SON, 37, Colmore-row, Birmingham.
Landell, W., 106, Trongate, Glasgow.
Lawson, James, 70, Argyle-st., Glasgow.
Littlewood, Thomas, 25, Howard-st., Glasgow.
Lizars, John, 16, Glassford-st., Glasgow.
Mason, G. & Co., 180 to 186, Sanchiehall-st., Glasgow.
M'Gillwray & Scobbie, 204, George-st., Glasgow.
McGregor, D. & Co., 44 & 45, Clyde-pl., Glasgow.
M'Intosh, J. A., 110, Ingram-st., Glasgow, and Newcastle-on-Tyne.
MORRIS, TIMOTHY, 3 & 4, Market-street, Birmingham. Philosophical.
Motherwell, John, 275, Argyle-st., Glasgow.
Norris & Fletcher, 33, Cardigan-st., Birmingham.
Panton, George & Son, 34, Stockwell-street, Glasgow.
Parkes, Jas. & Son, 5 & 6, St. Mary's-row, Birmingham.
Place, John, 13, Bull-st., Birmingham.
Sewill, F., Clutha-bldgs., 126, Bromielaw-street, Glasgow.
Smith, Isaac, 22, Newton-street, Birmingham.
Stanley, Wm. F., South Norwood, London.
Swift, John Arthur, 203, Glossop-rd., Sheffield.
Waller, Frank, Clough-road, Sheffield.
White & Co., 144, Bromielaw-street, Glasgow.
White, Jas., 241, Sanchiehall-st., Glasgow.
Whyte & Co., 144, Broomielaw-st., Glasgow.
Young, Robert & Son, 59, Clyde-place, Glasgow

Medical Battery Manufacturers, Galvanists & Electricians.

F.—Piles médicales (Fab. de) Galvanistes et Electriciens.
G.—Galvanisirmaschinen.

BAKER, GEORGE, 28, Broad-st., Birmingham. Inventor of the Electro Galvanic Belt of Life.
Parkes, F., 132, Burton-road, Derby.
Richardson, T. R., 1, South-terrace, London-road, Derby.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*

Digitized by Google

Merchants—Chemical.

F.—Marchands—produits chimiques.
G.—Händler in Chemikalien.

SHARPLES, G., 7, Fishergate-st., Preston. *See Index to advertisers.*
Spencer & Watson, Guildhall-chmbs., Newcastle-on-Tyne.

Merchants—Manganese.

F.—Marchands—Manganèse.
G.—Braunstein-Händler.

Blackwell, Geo. G., 26, Chapel-st., Liverpool.
Brunson, J. H., 25, Change-alley, Sheffield.
Carr & Co., Bridgegate, Rotherham.
Dobb, J. T., 68, West-bar, Sheffield.
Goadsby, S. & Co., 2, Albert-bridge, Manchester.
Heywood Bros., 4, Pearson-place, Cardiff.
Jenkins Bros., 8, Goree Piazzas, Liverpool.
Jennings, J., 1, Exchange-pl., Middlesborough.
Jobling, J. A., 13, Moseley-st., Newcastle-on-Tyne.
LANDER & LARSSON, 164, Edmund-street, Birmingham.
Martin, S. jun., & Co., Clarence works, Burton-road, Sheffield.
Meese, T., Brettell-lane, Brierley-hill.
Petchell, W., & Co., Dock-st., Middlesborough.
Ridley, J. C., King-st., Newcastle-on-Tyne.
Skey, G., & Co., Ld., Albion-wharf, Horseley-fields, Wolverhampton.
Skey, G., Wilnecote-house, Wilnecote, Warwickshire.
Vorley, H., John-st., London-road, Sheffield.
Williamson, J. C. & Co., Exchange-buildings, Quayside, Newcastle-on-Tyne.

Merchants—Tin.

F.—Marchands—Etain.
G.—Zinn-Händler.

Bolitho, Thos. & Sons, Penzance & Liverpool.
Bolitho, Thos. & Wm., Penzance; London Office, 39, Lombard-st., E.C.
Clark & Sons, G., Waterhouse-lane, Hull.
Wilson, Alfred E., 102B, Gt. Charles-st., B'ham.

Metal Merchants.

F.—Métaux (Marchands de).
G.—Metall-Händler.

Allen, Everitt & Son, Kingston Metal Works, Adderley-st., Birmingham.
Bassett, Bagnall & Co., 3, James-st., B'ham.
Blackmore, Joseph Thos., 3, James-st., B'ham.
Branson, J. H., 25, Change-alley, Sheffield.
Cain, John & Son, 53, Lichfield-road, B'ham.
Carr & Co., Compton Chambers, Effingham-st., Rotherham.
Chaundy, John Fulke, Norton Lees, Heeley, Norton, Sheffield.
Clarke, Hugh, Hockley-st., Birmingham.
CLIFFORD, CHARLES & SON, Rolling Mills, Fazeley-st., Birmingham.

Metal Merchants—*continued.*

Cooke, James (white metal), 24, Oak-st., Heeley, Sheffield.
Cooper, A. T., 21, Station-st., Walsall.
Corbett, Wm. & Co., 128 & 130, Edmund-st., Birmingham.
Cox, Stephen, Gibb-st., Deritend, Birmingham.
Crawford Bros., Printing-court-buildings, Alkenside-hill, Newcastle.
Crawley, Parsons & Co., 130, Colmore-row, Birmingham.
Creswell, Alfred Neve, Imperial Chambers B, Colmore-row, Birmingham.
Dimmack, M., Wolverhampton-st., Bilston, Stafford.
Dixon, S. & Son, Leeds Old Brass Works, Leeds, Yorkshire.
Drew, Hubert, 37, Montague-st., Birmingham.
Edwards, S. A. & Co., 6, Gt. Charles-st., B'ham.
Edwards, Harry S., Printing-court-buildings, Alkenside-hill, Newcastle.
Ellis, Charles & Sons, 28, Constitution-hill, & Wychall Mills, King's Norton, Birmingham.
Frampton, Hy. Wm., 42, 43, 44½, Jewry-st., Winchester, Hants.
Gargett, R., Commercial-st., Middlesborough.
Goodall, J. P., 8, King-st., Newcastle.
Green, Thomas, 3, Forth-st., Newcastle.
Green, William Fiddian, 10, St. Paul's-square, & 41, Water-st., Birmingham.
Greenaway, T., Ruiton, Upper Gornal, Dudley.
Hague, Richard, Percy-st., & 6 College-lane, Rotherham.
Handley, E., 7, Burlington-chambers, New-st., Birmingham.
Heathcote, P. & C., Wolverhampton.
Heslop & Wilson, Exchange-buildings, Lombard-st., Newcastle.
Hills, Menke & Co., 8, Gt. Charles-st., B'ham.
Hodgetts, John, 47, Northwood-st., Birmingham.
HUGHES, JOHN & JOSEPH, 76, Aston-st., Birmingham. *See index to advertisers.*
Hunt, Mitton & Co., 14 & 15, Oozells-st. North, Birmingham.
Lomas, Thos. Paul, 155, Moor-st., Birmingham.
Mainwaring, E. T., Paddington-villa, Hollyhead-road, Hudsworth.
Marsden, John, 28, Button-lane, & Carver-st., Sheffield.
Martin & Co., 47, Pritchett-st., Birmingham.
Moran, Bernard, 18, Peacroft, Sheffield.
Muntz's Metal Co., Limited, Smethwick.
Muntz, P. H. & Co., Great Bridge-st., West Bromwich.
Murphy, William, 25, New John-st., B'ham.
North, Allen & North, 21, 22, & 23, Snow-hill, Wolverhampton.
Nutt, Henry, 79, Lawley-street, Birmingham.
Onion, C. H., Queen-st., Wolverhampton.
Parkes, R., 65, New Hall-st., Willenhall.
Pearson, Holberry & Co., Argent-place, 173, Rockingham-st., Sheffield.
Perry, J. E., Washington-chambers, Queen-st., Wolverhampton.

Digitized by Google

Metal Merchants—*continued.*

Powers, Alfred, 16, Wrentham-st., & 147, Granville-st., Birmingham.
Purden, Thomas, 128 & 130, Lawley-st., B'ham
Rennie, James & Co., 19, Exchange-buildings, Stephenson-place, Birmingham.
Richards' Plastic Metal Co., 95, Charlotte-st., St. Paul's-square, Birmingham.
Richardson, J. W., Ferry-road, Middlesbrough.
Roberts, J. R., 4, Peel-buildings, Lower Temple-st., Birmingham.
Rogers, H. Sons & Co., 76, Eyre-st., Sheffield.
Rogers, H., Sons & Co., Wolverhampton.
Rollason, Abel & Son, 9, Mary-st., Caroline-st., Birmingham.
Scott Bros., Royal Insurance-buildings, Queen-st., Newcastle.
Sharpe & Plimley, 27, Queen-st., Wolverhampton.
Sheldon, W. H., 26 & 27, Augusta-st., B'ham.
Stanley, M., Upper Parliament-st, Nottingham.
Tildesley, J., jun., 9, Cross-st., Willenhall.
Tully, R., 15, George-st., Walsall.
Walker, T. W. & J., 16, Temple-st., Wolverhampton.
Watts & Lownds, Popham-st., Nottingham.
Watts & Nephew, 55 to 59, Allcock-st., B'ham.
Westbury, W. D. & Co., 103, Pritchett-st., Birmingham.
Wilkinson, John & Sons, Branston-st., B'ham.
Williams, E., Ruiton, Upper Gornal, Dudley.
Williams, Joseph, Blakeland-st., Little, Bromwich, Birmingham.
Williams, Wm, 37, Bordesley-gr., Birmingham.
Wilson, Alfred E., 102B, Great Charles-st., Birmingham. Agent for Spence's Metal.

Methylated Spirit Makers & Distillers.

F.—
G.—

Bowman, Duncan & Co., George-st. & Elizabeth-st., Macclesfield.

Model Makers.

F.—Modèles (Fab. de).
G.—Modelle—Fabr.

Curtis, John S., 13, Thornton-lane, Leicester.
Hughes, John Herbert, 239, Church-rd., Higher Tranmere, Birkenhead.
Jayes, Potter & Wass, 32, Duns-lane, Leicester.
Murdy, T., 3, Hutchinson-st., Nottingham.
Salverio, F., 53, Watergate-st., Chester.
Sharman Bros., 6, Free School-lane, Leicester.
Terry & Taylor, 119, Newhall-st., Birmingham.
Winters, G., 41, Marmaduke-st., Hull.

Muriatic Acid Manufacturers.

F.—Acide muriatique (Fab. de).
G.—Salzsäure—Fabr.

Mycock, John Henry, 53, College-road, Masbro', Rotherham.

Nickel Merchants.

F.—Nickel (Marchands de).
G.—Nickel-Händler.

Browett, Alfred, 14, Dean-st., Birmingham.
Holdsworth, Thos. W., 31 & 32, Steelhouse-lane, Birmingham.
Wilson, Alfred E., 102B, Gt. Chas.-st., B'ham.

Nickel Refiners.

F.—Nickel (Raffineurs de).
G.—Nickel-Läuterer.

Browett, A., 14, Dean-st., Birmingham.
CARLYLE, W. A., 91 & 92, Constitution-hill, Birmingham.
Nickel Co. (The), 4, Gt. Charles-st., Birmingham.
Wiggins, H. & Co., 55, George-st., Parade, Birmingham.

Nitric and Nitrous Acid Manufacturers.

F.—Acide nitrique et nitreux (Fab. de).
G.—Salpetersäure—Fabr.

Fielding & Higginbottom, New Mills, Stockport.

Oil Merchants.

F.—Huiles (Marchands de).
G.—Oel-Händler.

Adams, Joseph Key, 20, Whittall-st., B'ham.
Adderly, T., 142, Newton-st., Macclesfield.
Baker, John, 28, High-st., Deritend, B'ham.
Bertram & Macnay, Cow-lane-bridge, Brook-st., Chester.
Burton, John, 36, Brown-st., Macclesfield.
Dale & Plant, 81, Smallbrook-st., Birmingham.
Dee Oil Co., Saltney, Chester.
Fleming, A. B. & Co., Limited, 66, George-st., Parade, Birmingham.
Flintshire Oil & Cannel Co., Limited, St. David's Works, Saltney, Chester.
Fulford, Arthur, Don-road, Attercliffe, Sheffield.
Graham, Wm. & Son, 13, Market-place South, & 159, Price-st., Birkenhead.
Gray, John, Neepsend-lane, Sheffield.
Gilman, Joseph & Son, 139, 140 & 148, Lancaster-st., & 76, Steelhouse-lane, Birmingham.
Harrison & Wilcock, Bridge-st., Attercliffe, Sheffield.
Jeyes & Co., Catherine-st., Aston, Birmingham.
Kemp & Tabberner, 216, Ashted-row, B'ham.
Lewis, Jas., 277, High-st., West Bromwich, Birmingham.
Little, Irving & Co., 195 & 197, Cleveland-st., Birkenhead.
Marlow, Edward, 256, New Town-row, B'ham.
McNeil, Hector, 327, Lodge-road, Birmingham.
McSTOCKER, Robert, 239, Aston-road, B'ham.
Merrick, Wm. Higgins, Rolfe-st., Smethwick, Birmingham.
Mobey, Jas., 57, Brook-st., Macclesfield.
Morris, Pryce & Co., 119, Foregate-st., Chester.

Digitized by Google

Oil Merchants—*continued.*

Needham, Jas., 25, Little Pond-st., Sheffield.
Nicholson, J., 449 to 455, London-road, Sheffield.
Pearce, Wm., Bridge-st., Broad-st., Birmingham.
Peters & Hughes, 33, Eastgate-st., Chester.
Poole, Peter, Witton-st., Northwich.
Richards, Hy. Scott, 160, Rolfe-st., Smethwick, Birmingham.
Rowe, Jas. E. & Co., 192, High-st., Exeter.
Share, Wm., 113A, Constitution-hill, B'ham.
Short, Joseph, 220, Gt. Lister-st., Birmingham.
Shufflebotham, E. & Co., Icknield-port, B'ham.
Sutcliffe, Isherwood, 27, Gt. Hampton-st., Birmingham, & 9, Fenchurch-st., London, E.C.
Wheeldon, John & Co., 26, Adam-st., Sheffield.
Williams, Francis, 282, Broad-st., Birmingham.

Oil Refiners.

F.—Huiles (Raffineurs d').
G.—Oel-Läuterer.

Bradford, John & Sons, 12, Inner Temple, L'pool.
Flintshire Oil & Cannel Co., Limited, Saltney, Chester.
Harrison & Wilcock, Bridge-st., Attercliffe, Sheffield.
Hope & Co., 54, Bernard-st., Leith.
Kellogg, E. H., 8B, Romford-place, Liverpool (of New York), only manufacturer of anti-corrosive cylinder oil (J. Newland Brown, sole agent, 18, Bennett's-hill, Birmingham).
Shufflebotham, Enoch & Co., Icknield Port-road, Birmingham.

Optical Glass Makers.

F.—
G.—Optisches Glas—Fabr.

Chance Bros. & Co., Glass Works, Smethwick, Birmingham.
Edge, Jos. & Sons (grinders), 78, Dudley-road, Birmingham.
Macklow, Chas., 150, Sherlock-st., Birmingham.

Opticians.

F.—Opticiens.
G.—Optiker.

Ash, Moses & Son, 4, Bull-st., Birmingham.
Bailey, R., 14, Bennett's-hill, Birmingham.
Baird, Thos., 249, Argyle-st., Glasgow.
Barton, J., 68, Thirlwell-road, Heeley, Sheffield.
Black, Thos., 12, Netherthorpe-place, Sheffield.
Blackwood, H. & Co., 210, Buchanan-st., Glasgow.
Blackham, H., 64, Queen-st., Wolverhampton.
Bott, Thos. & Co., 72, Argyle-st., Birkenhead.
Braham, Fredk. Joseph, Plantagenet-buildings, Richard-st., Hockley, Birmingham.
Brooksbank, T., Drury-hill, Nottingham.
Bullock, T. W., 27, Stanley-st., Macclesfield.

Opticians—*continued.*

Campbell, Chas., 37, Nelson-st., City, Glasgow.
Chadburn Bros. (wholesale & retail), Albion Works, 30, Nursery-st., Sheffield.
Chick, John, 19, Gower-st., Leicester.
Darbyshire, Mrs. Ann, Pool Works, Burgess-st., & 20, Division-st., Sheffield.
Darbyshire, Wm., 34, Carver-st., Sheffield.
Davidson, Alex., 77, London-st., Glasgow.
Dobbie, Alex., 24 & 25, Clyde-place, Glasgow.
Field, Robt. & Co., 99, Suffolk-st., Birmingham.
Gargory, Jas., 41, Bull-st., Birmingham.
Greathead, N., 88, Belgrave-gate, Leicester.
Grey & Selby, 27, Pelham-st., Nottingham.
Hearnden, Wm., Pillory-st., Nantwich.
Hibbard, George, Havelock Works, Walker-st., Sheffield.
Kelly, Jas. & Andrew, 82, Argyle-st., Glasgow.
LANCASTER, JAS. & SON, 37, Colmore-row, Birmingham.
Lawson, Rankin & Co., 85, Buchanan-st., Glasgow.
Laycock, Chas., 245, Moorfields, Sheffield.
Lee, A. T., 31 & 33, Gallowtree-gate, Leicester.
Lee, John, 115, New Meadow-st., Sheffield.
Lenton & Rusby, 8, Waingate, Sheffield.
Liddall, Geo. (wholesale & retail), 15, Division-st., Sheffield.
Littlewood, Thos., 25, Howard-st., Glasgow.
Loveridge, George, 113, Gt. Charles-st., B'ham.
Lyle, Jas., 132, South Portland-st., Glasgow.
Macklow, Chas., 150, Sherlock-st., Birmingham.
Mason, Geo. & Co., 180 to 186, Sauchiehall-st., Glasgow.
M'Crossan, Joseph, 59 to 63, Gt. Enoch-st., Glasgow.
McGillivray & Scobbie, 204, George-st., Glasgow.
McGough, Lawrence & Son, 41, Albion-st., Glasgow.
McLeod, A. & M., 361, Argyle-st., Glasgow.
Mills, John, 88, Brearley-st., Birmingham.
Morrison, Francis, 67, Oswald-st., Glasgow.
Motherwell, John, 275, Argyle-st., Glasgow.
Muirhead, Jas. & Son, 90, Buchanan-st., Glasgow.
Myers, J., Dilk's-yard, Long-row West, Nottingham.
Panton, G. & Son, 34, Stockwell-st., Glasgow.
Parkes, Jas. & Son, 5 & 6, St. Mary's-row, Birmingham.
Pike, Edwin John, 166, Gt. King-st., B'ham.
Place, John, 13, Bull-st., Birmingham.
Potts, Jas., 102, Broad-st., Birmingham.
Purdon & Stokes, 126, Gt. Tindal-st., B'ham.
Remmell, J., 8, King-st., Derby.
Scott, Robert, 128, Sauchiehall-st., Glasgow.
Scouler, John, 64, Buchanan-st., Glasgow.
Staddon, J. S., Church-st., Ripley, Derby.
Stewart, A. & C., 19, Victoria-st., Glasgow.
Taylor, J., 11, Bridlesmith-gate, Nottingham.
Telford, Wm. N., 9, St. John's-st., Chester.
Thompson, Geo. Wm., 42, Hockley-hill, B'ham.
Vessey, F. S., 12, Hockley-hill, Nottingham.
Wale, F. W., 24, Gallowtree-st., Leicester.
Walker, John G., 44 & 45, Clyde-place, Glasgow.

Digitized by Google

Opticians—*continued.*

Waterall, G. & Son, 2, Chapel-bar, Market-place, Nottingham.
Westby, Mrs. J., 18, Humberstone-gate, Leicester.
Whetton, D. W. & Sons, 3 & 4, New-st., Sutton-in-Ashfield.
White, H., 1, Court, Hermitage-st., Sheffield.
White, Jas., 241, Sauchiehall-st., Glasgow.
Wild, Wm. Alf., Havelock Works, Walker-st., Sheffield.
Wilkinson, J., 44, Gallowtree-gate, Leicester.
Wilson, Thos., 4, Belvoir-st., Leicester.
Woolley, Thos., 55, Bridge-st.-row, Chester.
Yuill, Robt. M., 123, Canning-st., Glasgow.

Oxide Manufacturers.

F.—
G.—

Hoyle, Robson & Co., Paradise Works, 35, Close, Newcastle.

Patent & Design Registration Agents.

F.—Brevets et Marques de fabrique (Agents de).
G.—Agenten zum Registriren der Patente, &c.

Barker, George (Fellow of Institute of Patent Agents), 77, Colmore-row, Birmingham. International Patents & Designs Office.
Drury, Robert Francis, 24, George-st., Sheffield.
Gough, W. H., St. Peter's-gate, Nottingham.
Jameson & Schaeffer, Printing-court-chambers, & Akenside-hill, Newcastle-on-Tyne.
Kendrick, John, 7, Broad-st.-corner, Birmingham.
Kendrick, Thomas, 41, Temple-st., Birmingham.
Patent Office (Samuel Furness Holmes, agent), 7, St. James'-row, Sheffield.
PAYNE & TALBOT, 100, Colmore-row, B'ham.
Shaw, George, 37, Temple-st., Birmingham.
Sheffield Patent Office (Robert F. Drury, agent), 24, George-st., Sheffield.
Watkins, Stephen, 5, High-st., Wolverhampton.
Webster, G. E., Central-chambers, Market-st., Nottingham.

Permanent Way for Electric Wires.

F.—
G.—

Meyer, Henry Robert, 12B, Exchange-buildings, Liverpool. Meyer's Patent Permanent Way for Electric Conductors, or Underground Mains.

Platinum Refiners.

F.—Platine (Raffineurs de).
G.—Platinum-Läuterer.

Westwood, Chas., 2 & 3, St. Paul's-square, & 53, Great Hampton-st., Birmingham.

Porous Cell Manufacturers.

F.—Vases poreux (Fab. de).
G.—Poröse Glocken für Batterien.

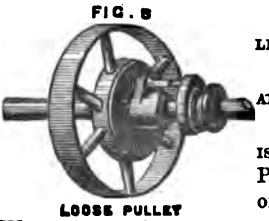
BOURNE, JOSEPH & SONS, Denby Pottery, near Derby. London Office & Show Rooms, 6, St. Pancras Station, Euston-road, N.W. Every description of Stoneware for Chemists & Electricians.

Pulley Makers.

F.—Poulies (Fab. de).
G.—Riemscheiben—Fabr.

ADDYMAN'S PATENT FRICTION PULLEY.

FIG. 8



LOOSE PULLEY

FAST & LOOSE PULLEYS DISPENSED WITH.
1 CLUTCH PULLEY ANSWERS FOR BOTH.
WHEN THE WEDGE IS WITHDRAWN, THE PULLEY RUNS LOOSE ON THE SHAFT.

WHERE BROAD BELTS ARE EMPLOYED IT IS INVALUABLE, AS THE SHAFT CAN BE STOPPED WITHOUT MOVING THE BELT.

BAGSHAW & SONS, ENGINEERS, BATLEY, YORKSHIRE. MAKERS OF TURNED WROUGHT IRON PULLEYS, SHAFTING, ETC.
Bagnall, W. G., Castle Engine Works, Stafford.
Clark, T. & C. & Co., Wolverhampton.
Cobham & Co., Stevenage, Herts.
Collins, James, 26, Cumberland-st., Birmingham.
Crossley, George, Albion Machine Works, Cleckheaton, Yorkshire.
Eades, W., Son & Co. (Eade's Patent), Westminster Works, Montgomery-st., Sparkbrook, Birmingham.
Fawcett, Thomas C., Old Victoria Foundry & Burmantofts Foundry, Manor-road, Cromwell-st., Leeds.
Goodfellow, Benjamin, Hyde, near Fenchurch.
Harcourt, Robt. C., & Son, 223, Moseley-st., Birmingham.
Hicks, Robert, 21 & 22, Goodrick-st., Birmingham.
Hind, H. & Son, Nottingham.
Hudswell, Clarke & Co., Railway Foundry, Leeds.
Imperial Steam Pump & Engineering Co. (The), Smethwick, Birmingham.
Joseph, Henry, The Manor-road Foundry, Leeds.
Mackie, J. J. & Co., Berks Iron Works, Reading.
Metcalf, T., Vulcan-st., Caledonian-st., Bradford.
Phillips, Chas. D., Emyln Works, Newport, Monmouthshire.
Priest, Rowland, Cradley-heath, near Brierley-hill, Birmingham. Telegrams to Cradley-heath.
Proctor & Co., Stevenage, Hertfordshire.
Reading Iron Works Co. (The), Ld., Reading, Berks.
Sagar, J. & Co., Bowling-green Iron Works, Halifax.

Digitized by Google

Pulley Makers—*continued.*

TANGYES, LIMITED, Cornwall Works, Soho, & Stephenson's-place, Birmingham.
TAYLOR & CHALLEN, Derwent Foundry, 99, Constitution-hill, Birmingham.
TAYLOR, CHAS., Edmund-st., Birmingham.
Thomas, George, 7, Lawrence-st., Birmingham.
Thomas, John, 94, Pritchett-st., Birmingham.
Thompson, E., Rawdon, near Leeds.
Victoria Engineering Co., Limited, Stockport.
Welch, Francis B. & Co., Manchester-chambers, Manchester. Only Wrought Iron Split Pulley in the market.

Railway Signal Manufacturers.

F.—Signaux de Chemins de fer (Fab. de).
G.—Signale für Eisenbahnen.

Auld, S., & Co., 240, Gallowgate, Glasgow.
Close & Ayre, Phœnix Ironworks, Fishergate.
Coupe, D. H., jun., & Co., Tinsley, Sheffield.
Cromlin Viaduct Wks. Co., Ld., Cromlin, Newport.
Dorset, W., High-st., Epsom.
Electric Railway Signal Co., Stone Cross, Mansfield, Notts.
Felton, T., Yates-street, Birmingham.
Fowler, J. & Co., India-buildings, Edinburgh.
Gloucester Wagon Co., Limited, Gloucester.
Grieve & Gillespie, 81, Ormonde-st., Jarrow.
Hartley & Arnoux Bros., California Wks., Stoke-on-Trent.
Hick, Hargreaves & Co., Soho Iron Wks, Bolton.
King, J., Pinxton, Alfreton.
Knight, T. & Co., Leopold-st., Birmingham.
Lea, C. H., Signal Works, Stafford.
Linley, A. & Co., 132, Lionel-st., Birmingham.
McLellan, P., & Walter, 129, Trongate, Glasgow.
McKenzie & Holland, Vulcan Iron Wks, Worcester.
Messenger & Sons, 19, Broad-street, Birmingham.
Oliver & Arrol, 29, Leith-walk, Edinburgh.
Railway Steel & Plant Co., Limited, Newton Heath, Manchester.
Ransome's & Rapier, Waterside Iron Works, Ipswich.
Rylands Bros., Ld., 116, Church-st., Warrington.
Smith, W., Castlefield, Manchester.
Stevens, J. J. & Sons, 470, New City-rd, Glasgow.
Tweedy, J. & Co., Metcalfe-st., Carlisle.

Railway Switch and Crossing Manufacturers.

F.—Aiguilles de Chemin de fer.
G.—Weichen—Fabr.

Meggson, T. A., Vulcan-st., Middlesbrough.
Moffit, J., Mandale-road, South Stockton, Stockton-on-Tees.
Hartley & Arnoux Bros., California works, Stoke-on-Trent, Staffs.

Refiners—Metal.

F.—Raffineurs.
G.—Läuterer.

Barker, Stephen, 16, Oozells-st. North, Birmingham.

Refiners—Metal—*continued.*

Betts & Sons, 64, Charlotte-st., Birmingham.
Cox, Stephen, Gibb-street, Deritend, B'ham.
Day, Edward, 28, Warstone-lane, Birmingham.
GRAY & CO. (Metal), 464, Gowan-st., Glasgow.
Harrold, Chas. & Co., 2 & 3, St. Paul's-square, Birmingham.
Hipwell, Thos., Norton-st., Balsall Heath, B'ham.
Keys, Jas. & Son (copper), Lawly-st., B'ham.
Lees & Saunders, 5, Warstone-lane, Birmingham.
Martin & Co., 47, Pritchett-st., Birmingham.
Mason, Sir Josiah, Birches-green, Erdington, Birmingham.
Oakes, Edmund William & Co., Limited, 28, Richard-st., Hockley, Birmingham.
Parker, Edward, 17, Bartholomew-row, B'ham.
Shaw, Thomas, 105, Aston-road, Birmingham.
Whitehouse, W. E., 28, Richard-st., Vise-st., Birmingham.

Rivet Manufacturers.

F.—Rivets (Fab. de).
G.—Nietnagel-Fabrikanten.

Barwell, William, Brookfield-st., Birmingham.
Birmingham Small Arms & Metal Co., Limited (copper & brass) (Thos. Richard Bayliss, manager), Adderley-park rolling mills & metal works, Saltley, Birmingham.
Bonney & Wilkes, Charles Henry-st., and Albert Rivet Works, Macdonald-st., Birmingham.
Burford & Son (screw), 18, Abbey-st., Lodge-road, Birmingham.
Child Bros., Falcon Works, Smethwick, B'ham.
Clarke William, 76, Miles-st., Sandy-la., B'ham.
Clyde Rivet Works Co., 115, Dundas-street, Kingston, Glasgow.
Cox, Henry, 57 & 58, Charles Henry-st., B'ham.
Edmunds, Henry Creswick & Co., 45, Burbury-st., Lozells; office, 1, Rope-walk, Dale End, Birmingham.
Haddon, Thomas & Co., Globe Works, Skinner-lane, Birmingham.
Lewis, Samuel & Co., Withymoor, Dudley.
Patent Nut and Bolt Co., Limited, London Works, Smethwick, Birmingham.
Patent Rivet Co. (Allcock & Harley, preprietors) Rolfe-st., Smethwick, Birmingham.
Pugh, Charles Henry (iron, copper, and brass), Whitworth Works, Rea-st south, Birmingham.
Souter, Wm., & Co., Preston & Albany-streets, Glasgow.
Smith, Sylvanus, High Park-road, Smethwick, Birmingham.
Turner & Co. (brass, iron & copper & shoe, & tingles), 6, Fisher-st., Birmingham.
TYNE BOLT & RIVET CO., Gateshead.
Tyzack, S. & Co., Monkwearmouth Iron Works, Sunderland.
Whitfield, Charles, Jn., 55, Charlotte-st., B'ham.
Whittington, William & Co., Scotland-st., Birmingham.

Digitized by Google

Rolling Mills and Rolled Metal Merchants.

F.—Laminoirs.
G.—Walzwerke.

Birmingham Battery & Metal Co. (Wm. Gibbons, manager) Selly Oak, Birmingham.
Birmingham Small Arms & Metal Co., Limited (Thos. Richard Bayliss, man.), Adderley-park Rolling Mills; secretary's office, Small Heath, Birmingham.
BOOTH, J. & CO., Sheepcote-street, Birmingham. Telephone, No. 311.
CLIFFORD, CHARLES & SON, rolling mills, Fazeley-st., & Dogpool, Pershore-rd., B'ham.
Cooper, William (Britannia metal), 293, Branford-st., Birmingham.
Crompton, Winfield (The) Electric Lights Association, Cambridge-st. Works, Birmingham, & 49, Farringdon-st., London, E.C.
Dugard Bros., Vulcan Rolling Mills, Bridge-st. west & Lower Hospital-st., Birmingham.
Ellis, Charles & Sons, 28, Constitution-hill & Wychal Mills, King's Norton, Birmingham.
Emery, A. H., Victoria Mills, 389, Lichfield-road, Birmingham.
Goode, B. W., 21 to 24, St. Paul's-sq., B'ham.
Hall-st. Metal Rolling Co. (J. Bisseker, manager) Hall-st. Works, Birmingham.
Harris & Sons, Thimble Mill-lane, Birmingham.
Harold, Charles & Co., 2 & 3, St. Paul's-square, Birmingham.
Headley, Birch & Co., Cumberland Works, Vittoria-st., Birmingham.
Heaton, Ralph & Sons, the Mint, Icknield-st., Birmingham.
Johnson, William & Co., Montgomery-st., B'ham.
Kynoch & Co., 65, Water-st., Birmingham.
Mason, Benj., Wharf-st., Aston Manor, B'ham.
Morris, William, Freeth-st., Birmingham.
Nokes, William, Speedwell Mills, Chester-st., Dartmouth-st., Birmingham.
Powell, Chas. Marshall, 65, 66 & 67, Bagot-st., & 37 & 38, Aston-road, Birmingham.
Ratcliff, John Francis, 1 & 2, Mary Ann-st., St. Paul's-square, Birmingham.
Rollason, Abel & Son, Romford Mills, Erdington, Birmingham.
Sheldon, W. H., 26 & 27, Augusta-st., B'ham.
Smith, Fredk., Waterloo Metal Works, St. Mary's-sq., Birmingham.
Spurrier, Fredk, Bournbrook, Selly Oak, B'ham.
Tainty, Alfred, 175, Great Hampton-row, B'ham.
TAYLER, D. F. & CO, New Hall Works, George-st., Parade, Birmingham.
Taylor, E. C. & Co., Surbiton Metal Works, Cato-st., Birmingham.
Taylor, Thomas Price, Plume Rolling Mills, Long Acre, Birmingham.
Vivian, Henry Hussey & Co., Osler-st., B'ham.
Walker, Samuel, Lower Fazeley-st., & 3, Church-st., Birmingham.
Wilkinson, John & Sons, Adderley-park-road, Saltley, & Branston-st., Saltley, Birmingham.
Wilkinson, William, Soho Rolling Mills, Heath-st. south, Spring-hill, Birmingham.

Rope Manufacturers.

F.—Corde (Fab. de).
G.—Seiler.

Abbott, T., 42, Chester Gate, Macclesfield.
Bradshaw, James, Winsford, R.S.O.
Brandon, John, King-st., Knutsford.
Burslam, Wm. H., Mill-st., Congleton.
Carr, Thomas, Middlewich.
Clarke Bros., Barnton, Northwich.
Gregg, Robert, 8, Bridge-st., Chester.
Hanson, Hy. & Son., Turncroft-lane, Stockport.
Hanson, Scott, & Co., Stockport.
Heginbotham, Jas., Bredbury, Stockport.
Hurton, Henry, 21, Brougham-st., Tranmere, Birkenhead.
Hodson, J., 288, Whitelands-road, Dukinfield.
Horn, Ralph, Muslin-st., Newton Moor, Manchester.
Illingworth, D., Bridge-street, Staleybridge.
Jones, Mrs. C., Eastgate-st., Chester.
Kenyon, W., Chapel Field Ropery, Dukinfield.
Monks, James, 3, St. James'-st., Latchford, Warrington.
Moss, John, Winsford, R.S.O.
Nightingale, John, Middlewich.
Ovens, Mrs. Susannah, Field Cottage, Newton Moor, Manchester.
Palin, Joseph, Witton-st., Northwich.
Rowbottom, James, Muslin-st., Newton Moor, Manchester.
Stafford, Henry, 35, Town-lane, Dukinfield.
Taylor, J., Cheetham Hill-road, Dukinfield.
Taylor, J., St. John's Ropery, Stalybridge.
Tushy & Eccleson, Freeman-st., Birkenhead
Watson, Thomas, Palmerston-st., Bollington, Macclesfield.

Saltpetre Works.

F.—Salpêtre (Fab. de).
G.—Salpeter—Fabr.

Lowwood Gunpowder Co., Saltpetre Works, Acton Bridge, Acton, Northwich.

Screw Makers.

F.—Vis (Fab. de).
G.—Schrauben-Fabriken.

Albert Iron Co. (Hunter & Black), Albert Works, Whifflet, Coatbridge, Glasgow.
Bilsland, John, 37, Elliott-st., Glasgow.
Bonney & Wilkes, Charles Henry-st., B'ham.
Child Bros., Falcon Works, Smethwick, B'ham.
Clyde Rivet Works Co., 115, Dundas-st., Kingston, Glasgow.
Cox, Henry, 57 & 58, Charles Henry-st., B'ham.
Crosher, Wm., & Co., Portman-st., Kinning-pk., Glasgow.
Dempster, Moore & Co., 49, Robertson-st., Glasgow.
Eaves, Thomas, Scotland-st., Birmingham.
Haddon, Thomas & Co., Globe Works, Skinner-lane, Birmingham.

Digitized by Google

Screw Makers—*continued.*

Hannay, Thomas, 21, St. Vincent-pl., Glasgow.
Hawkins & Co., 330 & 331, Cheapside, B'ham.
Hooper, Peter, 29, Morville-st., Ladywood, Birmingham.
Johnson, Benjamin, Napier Joint & Shovel Works, Napier-st., Sheffield.
Laing, R. G., 29, Waterloo-st., Glasgow.
Lloyd Bros. & Co., 25, Floodgate-st. & Gibb-st., Birmingham.
London Screw Co., (Joseph Horton, manager), Hawthorn-st., Oldbury-rd., Smethwick, B'ham.
McNeil, Chas., junr., 270, W. Scotland-st., Glasgow.
Miller, Geo., 204, Stobcross-st., Glasgow.
Nettlefolds, Limited, 16, Broad-st. & 26 & 27, Princip-st, ; & at Breedon Cross, King's Norton, & Cranford-st., Smethwick, Birmingham.
Patent Nut & Bolt Company, Limited, London Works, Smethwick, Birmingham.
Patent Rivet Company, Rolfe-st., Smethwick, Birmingham.
Priest & Co., Pea Croft Brass Works, Sheffield.
Pritchard, George, Scotland-st., Birmingham.
Pugh, Charles Henry, Whitworth Works, Rea-st. South, Birmingham.
Rose, James, Helen-st., Govan, Glasgow.
Souter, Wm. & Co., Preston & Albany-sts., Glasgow.
Stewart, Charles R., 40, St. Enoch-sq., Glasgow.
Thomson, Matthew, 14, Charles-st., St. Rollox, Glasgow.
Titley, Robert & Co., 270, Bishop-st., B'ham.
TYNE BOLT & RIVET CO., Gateshead.
White, Thomas, Thorpe Hesley, Rotherham.

Screw Stock & Die Tap Makers.

F.—
G.—

Ashbury, J., 46, Vincent-parade, Balsall-heath-road, Birmingham.
Chatwin, Thos, Victoria Works, Gt. Tyndal-st. Birmingham.
Daniell, S. A., Lion Works, Edward-st., B'ham.
Eades, W., Son & Co., Westminster Works, Montgomery-st., Sparkbrook, Birmingham.
Lilly, William, 122½ Gooch-st., Birmingham.
Palmer, John & Sons, Lightwood Works, Harbourne, Birmingham.
Powell, John (established 1773), 76, Oxford-st., Birmingham.

Screw Terminal & Small Detached Accessories Manufacturers.

F.—Vis, Bornes, et petits accessories detachés.
G. Schrauben und sonstige Artikel für Elcotriker.

Appleby & Stamps, 29, Graham-st., Birmingham.
ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
MOON, HENRY, 103, Suffolk-st., Birmingham.

Sealing Wax Manufacturers.

F.—Cire à cacheter.
G.—Siegellack.

Alexander, Ferguson & Co., 38, McAlpine-st., Glasgow.
Arbuckle, Thos., 52, Oxford-st., Glasgow.
Liddell, John, 145, Trongate, Glasgow.
Waterston, Sons & Stewart. Works: Edinburgh; & Offices: 9, Rose-st., Newgate-st., E.C.

Shackle Manufacturers.

F.—Isoloirs électriques.
G.—Isolator-Fabriken.

MALING, C. T., Ford Pottery, Newcastle-on-Tyne. London Sample Rooms, 20, Bartlett's-buildings, Holborn-circus, E.C. *See index to advertisers.*
PEARSON, JAS, Whittington-moor Potteries, near Chesterfield. London Sample Rooms, 20, Bartlett's-buildings, Holborn-circus, E.C. *See index to advertisers.*

Shafting Manufacturers.

F.—Transmissions (Fab. de).
G.—Schäften-Fabriken.

Brown, Bayley, Dixon & Co., Sheffield.
Fawcett, Thomas C., Old Victoria Foundry & Burmantofts Foundry, Manor-road, Cromwell-st., Leeds.
HALL, C. E., Meersbrook Bank, Sheffield.
Hind, H. & Son, Nottingham.
Kirkstall Forge Co. Leeds.
Phillips, Chas. D., Emlyn Works, Newport, Mon.
Reading Iron Works Co. (The), Ld., Reading, Berks.
Sagar, J. & Co., Bowling-green Iron Works, Halifax.
Snowball & Co., Crown Bridges Side, Newcastle-on-Tyne.
TAYLOR & CHALLEN, Birmingham.
Thompson, E., Rawdon, near Leeds.
Victoria Engineering Co., Stockport.
Yates, Wm. & John, Canal Foundry Blackburn.

Sheet Lead Manufacturers.

See Lead Manufacturers.

Shellac Merchants.

F.—Laque en écaille.
G.—Schellack-Händler.

Glen, A. B. & Son, 9, Howard-st., Glasgow.

Digitized by Google

Ships' Telegraph—(Makers of).

F.—Pilégraphes pour navires.
G.—Schiffs-Telegraphen.

Hannan & Buchanan, 75, Robertson-st., Glasgow.
Henderson, Chas. & Co., 9, York-buildings, York-st., Glasgow.
Holmes, J. R., 175, St. Vincent-st., Glasgow.
Stewart, Chas R., 40, St. Enoch-sq., Glasgow.

Silk Spinners.

F.—Filateurs de soie.
G.—Seidenspinner.

Brocklehurst, John & Thos. & Son, Hardsfield-road, Macclesfield.
Hollins, W. & Co., 9, Fletcher-gate, Nottingham.
Reade & Co., Brook & Stonehouse-green Mills, Congleton.
Wild & Bradwell, Forge Mills, Crowledge, Congleton.

Silver Solder Manufacturers.

F.—Sondeur de l'argent.
G.—Silber-Loth.

Thickett, J., 47, 49 & 51, Charles-st., Sheffield.

Smelters.

F.—Fondeurs.
G—.Schmelzer.

Lees & Saunders, 5, Warstone-lane, Birmingham.
Runcorn Smelting Co., Gas-st., Runcorn.

Soda Manufacturers.

F.—
G.—Soda-Sieder.

Burnett, Thos. & Son, Lombard-st., Newcastle.
Walker Alkali Co., Walker, Newcastle.
Washington Chemical Co., 26, Grey-st., N'castle.

Solder Merchants.

F.—Sondeur (Marchands de).
G.—Loth-Händler.

WILSON, ALFRED E., 102B, Great Charles-st., Birmingham. Yellow & Tinmans.

Spelter Manufacturers & Merchants.

F.—Zinc (Fab. de).
G.—Spiauter—Fabr.

Boundy, C. & Co., Hartshay, Ripley, Yorkshire.
Braby, F. & Co., Limited, Gt. Clyde-st., Glasgow.
Brown, T. & Co., 19, Call-lane, Leeds.
Campbell, T. B. & Co.., 8, Picardy-place, Edinburgh.
Crown Zinc Co., Swansea.

Spelter Manufs. & Merchants—*continued.*

Dillwyn & Co., Cambrian-place, Swansea.
Edwards, S. A. & Co., 6, Gt. Charles-st., B'ham.
Handly, E., 7, Burlington-chambers, New-st., Birmingham.
Hendon Spelter Co., High-st. East, Sunderland.
Holman, Rogers, Michell & Co., City-buildings, Old Hall-st., Liverpool.
Hope, Geo., 13 & 14, Hylton-st., Birmingham.
Hutchison & Co., 9, Oswald-st., Glasgow.
Kenrick & Son, The Spelter Works, Ruabon, North Wales.
Laing, R. G., 29, Waterloo-st., Glasgow.
Richardson & Co., Copper Ore Wharves, Swansea.
Rylands Bros., Bank-quay, Warrington.
Scottish Spelter Co., Lower Greenhill, Stirlingshire.
Swan, D. & Co., Mary-hill, Glasgow.
Swan, jun., & Aitken, Mary-hill, Glasgow.
Swansea Vale Spelter Company, Limited (The), Swansea.
Tindale Spelter Co., 1, Dean-st., Newcastle-on-Tyne.
Victoria Engineering Co., Limited, Portwood, Stockport.
Villiers Spelter Co., Limited, Swansea.
Vivian & Sons, 46, George-st. Parade, B'ham.
Vivian & Sons, Margam & Hafod Works, Swansea.
WILSON, ALFRED E., 102B, Gt. Charles-st., Birmingham. Flux skimmings & hard spelter merchants.

Spring Makers for Pushes.

F.—Ressorts (Fab. de)
G.—Sprungfeder-Fabrikanten.

ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
Gent, J. T. & Co., Faraday Works, Leicester.
See index to advertisers.
Mole, M. & Son, 51 to 54, Charlotte-st., B'ham.

Steam Boiler Fittings Manufacturers.

F.—
G.—Utensilien für Maschinen und Dampfkessel.

Breeden (J. & W.) & Booth, Cheapside & New Mill Works; offices at Cheapside Works, Birmingham.
Glydon, Geo., 40 & 41, Oozells-st., Birmingham.
Hunt, Mitton & Co., 14 & 15, Oozells-st. North, Birmingham.
Jennens, Jos. & Thos. E., 64, Villa-st., Hockley, Birmingham.
Moorhouse, Sydney, Victoria Brass & Iron Works, Stalybridge.
Payne & Griffiths, 15, Severn-st., Birmingham.
Powell, Chas. Marshall, 37 & 38, Aston-road, & 65, 66 & 67, Bagot-st., Birmingham.
Tonks, Geo. T., 62, Rea-st., Birmingham.
Twibill, Jos., Broadheath, Altrincham.
Winn, Chas. & Co., 140, Granville-st. Birmingham. *See index to advertisers.*

Digitized by Google

Steam Engine Boiler Makers.

F.—Chaudières à vapeur (Fab. de)
G.—Dampfkessel—Fabr.

Abbott & Co., Newark.
Adam, D. C. & Co., 23, Mair-st., Glasgow.
Adamson, Daniel & Co., Engineering Works, Dukinfield, near Manchester.
Adamson, D. & Co., 65, West Regent-st., Glasgow.
Adamson, Joseph & Co., Hyde, near Manchester.
Adamson, J. & Co., Woodend, Hyde, Cheshire.
Alison, Gallaway & Co., Macus-st., Birkenhead.
Alma Boiler Works, 824, Gallowgate, Glasgow.
Anderson & Lyall, Whitefield-road, Govan, Glasg.
Arnold, J., New Brampton, Chesterfield.
Bagnall, W. G., Castle Engine Works, Stafford.
Barlow, J. & W., Crawford-st., Rochdale.
Belliss, G. E. & Co., Ledsam-st. Works, Ledsam-st., Birmingham.
Bennie, James & Co., Kinning-st., Glasgow.
Birmingham Patent Safety Steam Boiler Co., 28, Heneage-st., Birmingham.
Bogle, Gilbert & Co., 47, Oswald-st., Glasgow.
Boss, M., Measham, Atherstone.
Brettell, J. O. & C. E., Lowesmoor Works, Worcester.
Bruce, Robert, 16, St. Enoch-square, Glasgow.
Bullock, J., Market-st., Eastwood, R. S. O.
Butterworth, James, King-st. West, Manchester.
Campbell, A. & Co., 71A, Finnieston-st., Glasgow.
Chambers Bros., Effingham Mills, Blast-lane, Attercliffe, Sheffield.
Chaplin, A. & Co., 60, Cranston-st., Glasgow.
Cleveland Bridge & Engineering Co., Limited, Bank-top, Darlington.
Cochran & Co., Birkenhead.
Crown Point Works, Crown Point-rd., Glasgow.
Danks, H. & T. Netherton, near Dudley, B'ham.
Davidson, D., 19, Union-place, North-st., Glasgow
Davy Bros., Limited, Park Iron Works & Rolling Mills, Foley-st., Sheffield. Manufacturers of Steam Engine Boilers of all descriptions.
Dock Engine & Boiler Works, 27, South Kenning-place, Glasgow.
Dunsmuir & Jackson, Govan Engine Works, Glasgow.
Elder, John & Co., Fairfield, Govan, Glasgow.
Fawcett, Thomas C., Old Victoria Foundry, Manor-road, Leeds.
Ferguson, Thos. & Son, 105, West-st., Parkhead, Glasgow.
Finnieston Works, 30, Lancefield-quay, Glasgow.
Frame & Jenman, 377, Dalmar-road, Glasgow.
Galloway, W. & J. & Sons, 202, Hope-st., Glasgow, & Knott Mill Iron Works, Manchester.
Gimson & Co., Vulcan-st., Leicester.
Goodfellow, Benj., Hyde, near Manchester.
Grant, Ritchie & Co., Kilmarnock.
Grayson, H. & C., Taylor-st., Birkenhead.
Hartley & Co., Canal Iron Works, Hyde, near Manchester.
Harvey, Robert & Co., Park-grove Iron Works, Paisley-road, Glasgow.
Hawksley, Wild & Co., Brightside Boiler & Engine Works. Brightside-lane, Sheffield.

Steam Engine Boiler Makers—*continued.*

Henderson, D. & W. & Co., 30, Lancefield-quay, Glasgow.
HINDLEY, E. T., Bourton, Dorset. London office, 32, Queen Victoria-st., E.C. *See index to advertisers.*
Hopkinson, J. & Co., Britannia Works, Huddersfield.
Horseley Co., The, Limited, Tipton, Staffordshire.
Horton, Joshua & Wm., Etna Works, Smethwick, Birmingham.
Horton, Thos., Vittoria-st., Smethwick, B'ham.
Howard, Daniel, West Bromwich, Birmingham.
Hudson, Thos., Sheepford Boiler Works, Coatbridge, Glasgow.
Humes, James S. & Co., Portman-st., Glasgow.
Hutson & Corbett, Kelvinhaugh-st., Glasgow.
Jenkins, Robert & Co., Masbro' Boiler Works, Wortley-road, Masbro', Rotherham.
Johnston, John, Attercliffe Boiler Works, Pothouse-lane & Old Hall-road, Attercliffe-common, Sheffield.
Keay, E. C. & J., Victoria-buildings, Corporation-st., Birmingham.
King, W. & Co., 27, So. Kinning-place, Glasgow.
Laidlaw, Sons & Caine, Fordneaux-st., Glasgow.
Lees, Anderson & Co., 100, Clyde-st., Anderston, Glasgow.
Lilybank Boiler Works, Eglington-st., Glasgow.
London & Glasgow Engineering Co., 172, Lancefield-st., Glasgow.
Maddocks, R. & Co., 5, Duke-st., Birkenhead.
Marriott & Graham, Broomloan-rd., Govan, Glas.
M'Intyre & Lang, 89, Dumbart-road, Glasgow.
M'Lellan, J. & W., Vermont-st., Glasgow.
M'Nicoll & Smith, 6, Dixon-st., Glasgow.
Midgley, David, Wood-nook Boiler Works, Stanningley, near Leeds.
Miles, H. J., Albert Iron Works, Bristol.
Miller, John & Co., 8, Greenhill-st., Glasgow.
Miller & Co., Vulcan Foundry, Coatbridge, Glasg.
Mirrlees, Tait & Watson, 45, Scotland-st., Glasg.
Moore & Carling, Eckington, Chesterfield.
Muir & Caldwell, 130, Elliot-st., Glasgow.
Muir & Houston, Portman-st., Glasgow.
Muir, Robert, Henrietta-st., Glasgow.
Nelson, James & Son, 824, Gallowgate, Glasgow.
Nicholson, Alex. & Co., St. Marnock-st., Glasgow.
Norman, John & Co., 16 to 22, Pulteney-st., Glasgow.
Oldham Boiler Works Co., Oldham.
Patent Steam Boiler Co., 3, Holmhead-st., Glasgow.
Pearson & Knowles, 21, St. Vincent-place, Glasgow.
Phillips, Chas. D., Emlyn Works, Newport, Mon.
Piggott, Thos. & Co., Dudley-road & Oozells-st., Birmingham.
Pimblott, Isaac, Leftwich, Northwich.
Poole, Isaiah, 16, Egerton-st., Chester.
Preston, Wm. & Co., Boiler Works, Walter-st., Nechells, Birmingham.
Preston, Abraham, 110, Dartmouth-st., B'ham.
Rait & Lindsay, 60, Elliot-st., Glasgow.

Digitized by Google

Steam Engine Boiler Makers—*continued.*

Rankin, R. & Co., 35, Paisley-road, Glasgow.
Riddel & Co., 49, Jamaica-st., Glasgow.
Robey & Co., Globe Works, Glasgow. *See index to advertisers.*
Rogers, Mrs. E., 18, Queen's-walk, Nottingham.
Ross & Duncan, 23, Hyde-park-st., Glasgow.
Ruston, Proctor & Co., Sheaf Iron Works, Lincoln.
Sanders, J., 16, Wickham-st., Monkwearmouth.
Sykes, John, New Whittington, Chesterfield.
Tannett, Walker & Co., Leeds.
Thorpe, John, Newton Moor Boiler Works, Newton Moor, Manchester.
Tannett, Walker & Co., Leeds.
Tinker, Shenton & Co., Flowery Field, Newton Moor, Manchester.
Turner, Wm., Adelphi-st., Salford, Manchester.
Vernon & Ewens, Central Iron Works, Cheltenham.
Walley, J., St. Mary's-bridge Works, Derby.
Warren Bros., Stanton, Burton-on-Trent.
Whitehouse, J., Rutland-st., Ilkeston.
Woodall, Samuel, Victoria-buildgs, Corporation-st., Birmingham.
Yates, Wm. & John, Canal Foundry, Blackburn.
Yorkshire Engine Co., Limited (The), Meadow Hall Works, Wincobank, Sheffield.
Young, J. & T., Vul. Foundry, Ayr, Glasgow.

Steam Engine Indicator Makers.

F.—Indicateurs pour machines à vapeur.
G.—Indicator für Dampfmaschinen—Fabr.

Blancke, C. W. Julius & Co., 63, St. Vincent-st., Glasgow.
Carlaw, David, 54 to 56, Ropework-lane, Glasgow.
Dempster, Moore & Co., 49, Robertson-street, Glasgow.
Hannan & Buchanan, 75, Robertson-st., Glasgow. Richards' Patent.
Harding, T. H. & Son, Tower Works, Leeds. Harding's Speed Indicator.
Hendry Brothers, 79, Great Clyde-st., Glasgow.
Lang, F., 41, South Albion-st., Glasgow.
Llewellins & James, 28, Bath-st., Glasgow.
McNaught, W., 26, Robertson-st, Glasgow.
Morrison, F., 67, Oswald-st., Glasgow.
Schaffer & Budenberg, 202, Hope-st., Glasgow.
Stewart, A. & C., 19, Victoria-st., Glasgow.

Steam Packing Makers.

See also India Rubber Steam Packing Manufacturers.

F—Garnitures à vapeur (Fab. de).
G.—Liederungsdeckel-Fabrikanten.

Binney & Son, 30, W. Howard-st., Glasgow.
Birmingham India Rubber Co., New & Charles Henry-sts., Birmingham. (India Rubber.)
Dempster, Moore & Co., 49, Robertson-st., Glasgw.
Dewhurst, John & Son, 143, Tinsley-rd., Sheffield.
Hall, Thomas Henry, 3, Gosta-green, B'ham.
Macintosh, Charles & Co., Cambridge-st., Manchester.
Miles, John & Co., Albert Works, Bolton, Lancashire.

Steam Packing Makers—*continued.*

Parsons, R., 116, Steelhouse-la., B'ham. (Cotton).
Platt, W. H. & Co., Stamford-st., Ashton-under-Lyne.
Terrell, Wm. & Sons, Limited, Welsh-back & Canon's-marsh, Bristol.
Turner, T. B. & Co., Scotia Mills, Gerard-st., Derby.
United Asbestos Co., Limited, Clement-st. Paint Works, Birmingham. (Asbestos.)
Wilson, Wm. & Alex., 186, James-st., Bridgeton Cross, Glasgow.
Wotherspoon, James & Son, 97, Wellington-st., Glasgow.

Steel Castings Manufacturers.

F.—Acier (Fondeurs d').
G.—Stahl-Former.

HADFIELD'S STEEL FOUNDRY CO., 168, Newhall-road, Attercliffe, Sheffield.
Osborn, Samuel & Co., Clyde Steel & Iron Works, Wicker & Brook-hill, Sheffield; & 16, Philpot-lane, London E.C.
Turton, Thomas & Sons, Sheaf & Spring Works, Maltravers-st., Sheffield.

Steel & File Manufacturers.

F.—Acier et Limes (Fab. d'):
G.—Stahl- und Feilen-Fabrikanten.

Ashforth, Joseph & Co., Bruce Works, Mowbray-st., Sheffield.
Becket, Alfred & Sons, Green-lane, Sheffield.
Betts, William, 7½, Monmouth-lane, Sheffield.
Bosher, A. B. & Co., 125, Queen-st., Sheffield.
Boswell Brothers, Cyprus Works, Mary-street, Sheffield.
Cadman, Charles & Sons, Canal Works, Cadman-st., Sheffield.
Camm, Bagshaw & Co., Leadmill Steel Works, Matilda-lane, Sheffield.
Coulson (Jukes), Stokes & Co. (Frank Hiller, Manager), West-street-lane & 3, Carver-st., Sheffield.
Newbould, Samuel & Co., Limited, Bridge Field Works, 70, Newhall-road, Brightside-lane, Sheffield.
Garside, Thomas, Oughtibridge, Sheffield.
Gray, John, Phœnix Works, 160, Matilda-st., Sheffield.
Greaves, E. & Sons, Ecclesfield, Sheffield.
Green, T. L. & Co., Gilcar File Works, Napier-st., Sheffield.
Green, S., 119, Newhall-st., Birmingham.
Holdsworth, Thomas, Oughtibridge, Sheffield.
Ibbotson Brothers & Co., Limited, Globe Steel Works, Green-lane, Sheffield. Sole Manufacturer of the celebrated "Globe Files."
Linley, Nicholas, Woodseats, Norton, Sheffield.
Marriott & Atkinson, Fitzalan Works, Effingham-road & Royds Rolling Mills, Royds Mill-st., Sheffield.
Butcher, W. & S., 41, Eyre-lane & 13, Furnival st., Sheffield.

Digitized by Google

Steel & File Manufacturers—*continued.*

Mawhood Brothers, Palm Tree Works, Brightside-lane, Sheffield.
Moore, William, South Yorkshire Steel Works, Leveson-street, Attercliffe-road, Sheffield.
Moss, Joshua & Gamble Brothers, Wadsley-bridge Steel Works, Wadsley, Sheffield; & at Franklin Works, 1, Russell-st., Sheffield.
Muxlow & Knott, Pothouse-road, Attercliffe-common, Sheffield.
Nicholls, T., 28A, Newton-st., Birmingham.
Osborn, Samuel & Co., Wicker, Brookhill & Blonk-st., Sheffield.
Osborne, Thos. Woodside, Norton, Sheffield.
Outram, Henry & Son, Canal Works, Cadman-st., Sheffield.
Oxley & Cooper, Parkgate, Rotherham.
Oxley, Tom, Norfolk Market-hall, Sheffield.
Peace, W. K. & C., Eagle Works, Mowbray-st., Sheffield.
Renton, Robert, Yorkshire Steel & File Works, Napier-st., Sheffield.
Roberts, Mrs. H., 31, Spital-st., Sheffield.
Russel, T., Bernard-lane-park, Sheffield.
Sanderson Brothers & Co., Limited, 134, Newhall-road & Iron Wharf, 6, Pinfold-lane, Attercliffe; & Darnall-road, Sheffield.
Shaw, James, Dauntless Works, Morpeth-street, Sheffield.
Sheffield Steel & Manufacturing Co. (The), Lmtd., (Joseph Peace, Man. & Sec.), Lancaster-st., Neepsend, Sheffield.
Spencer, John & Sons, Newburn Steel Works, Newcastle-on-Tyne.
Spencer, Walter & Co., Midland Steel Works, Masbrough-st., Masbrough, Rotherham.
Stagg, Thos. M., 234, Solly-st., Sheffield.
Stones, John (Exors. of), Milton Works, 80, Milton-st., Sheffield.
Turton, Thomas & Sons, Sheaf Works & Spring Works, Sheffield.
Walker, Geo., Midland Works, Whittall-street, Birmingham.
Wild, James & Frederick Charles, Borussia Works, Jericho-st., Sheffield.
Wilks & Hawksley, Pond-hill, Sheffield.
Wolstenholme, Joseph & Co., Middlesex Works, Newcastle-st., Sheffield.
Wortley, John, 64, John-st., Sheffield.

Steel Manufacturers.

F.—Acier (Fab. d').
G.—Stahl-Werke.

Ætna Steel Works, Forge-yard, Savile-st. East, Sheffield.
Andrew, John Henry & Co., Toledo Steel Works, Neepsend-lane & 72, Effingham-road, Sheffield.
Askham Bros. & Wilson, Limited, Yorkshire Steel Works, Napier Works, Sheffield.
Beckett, Alfred & Sons, Brooklyn Works, Green-lane, Sheffield.
Bessemer, Henry & Co., Sheffield.
Brown, Samuel, 20, Garden-st., Sheffield.

Steel Manufacturers—*continued.*

Butterley Co. (Wm. Arthur, agent), 9, Norfolk-row, Sheffield; & Butterley-st., Leeds.
Clarke, J. C. & Co., 38, Carr-lane & Newcastle-st., Sheffield.
Cooper, Edward & Co., 29, Norfolk-lane, Sheffield.
Deakin, Reuss & Co., Tiger Works, Green-lane, Sheffield.
Dixon, Chas. & Son, 10, Norfolk-st., Sheffield.
Dixon, William, Park View Works, Owlerton, Sheffield.
Fisher, William, Wicker Arches, Walker-st., and 46, Johnson-st., Sheffield.
Green, T. L. & Co. (late John Blackwell), Gilcar File Works, 112, Napier-st., Sheffield.
Griffith, William & Co., 3, Surrey-st., and Attercliffe, Sheffield.
Hallamshire Steel & File Co., Limited (Wm. Glossop, sec. (John Hunt, man.), Bardwell-road, Neepsend, Sheffield.
Ibbotson, Richard, Shoreham Works, 24, Norfolk-lane & 185, Norfolk-st., Sheffield.
Inman, Tom, Britannia Steel Works, Creswick-walk, Pond-hill; residence, 48, Norfolk-road, Park, Sheffield.
Jackson, William & Sons, Sheaf Island Works, Pond-hill, Sheffield.
Johnson, Christopher & Co., Western Works and Western Steel Works, Portobello-st., Sheffield.
Johnson, William, Napier Screw & Rivet Works, Napier-st., Sheffield.
Knott, Joseph, Highfield Steel Works, 106, New Thomas-st., Sheffield.
Makin, Thomas & Son, 105, Edward-st., Sheffield.
Mawhood Brothers, Palm Tree Works, Pond-hill, Sheffield.
Mitchell, J. & Co., Limited, Napier Works, Napier-st., Sheffield.
Nicholson, Benjamin, Shoreham Steel Works, Bramall-lane, Sheffield.
Oxley, William & Co., Parkgate Steel Works, Parkgate, Rotherham.
Pearson, T. W., Works, Plum-st., Sheffield.
Renton, Robert, Yorkshire Steel & File Works, Napier-st., Sheffield.
Sanderson Brothers & Co.; Limited, 134, Newhall-road, Iron Wharf, 6, Pinfold.
Senior, George, Station-road; Pond Forge, 31, Shude-lane, Pond-st.; & Sheaf-st., Sheffield.
Smith, Robt. & Co., 74, Eyre-st., Sheffield.
Smith, William, Hallamshire Steel & File Works, Neepsend, Sheffield.
Spafford, A. & Co., Imperial Works, Brown-st., Sheffield.
Spear & Jackson, Etna wks., Savile-st. E., Shffld.
Steel, Tozer & Hampton, Limited, Phœnix Bessemer Steel Works, Ickles, Rotherham; and Alliance-chambers, George-st., Sheffield.
Vessey & Friend, Brunswick Steel Works, New Thomas-st., Sheffield.
Wallis, George Carpenter, Haymarket-chambers, Old Haymarket, Sheffield.
Waterfall (H. & R.) & Barber, 12, Bailey-lane, Sheffield.

Digitized by Google

Steel Manufacturers—*continued.*

Wild, James & Frederick Chas., Borussia Works, Jericho-st., Sheffield.
Wilks & Hawksley, Pond-hill, Sheffield.
Willis, John & Co., Park Side Steel Works, Sussex-st., Sheffield.
Wood, George, Owlerton, Sheffield.
Wright, Henry, Garden-street, Mexborough, Rotherham.
Yeomans & Eadon, High Bridge Forge, Owlerton, Sheffield.

Steel Tilters, Rollers & Forgers.

F.—
G.—Stahl-Walzwerke, Stahlhammer etc.

Capper, George, Chantrey Works, Besemer-road, Attercliffe, Sheffield.
Dixon, William, Park View Works, Owlerton, Sheffield.
Eaton, Thomas & Booth Henry, Owlerton-bridge Works, Owlerton, Sheffield.
Osborn, Samuel & Co., Wicker, Brook-hill & Blonk-st., Sheffield.
Roper, Robert, Millsands, Sheffield.
Sanderson Brothers & Co., Limited, 134, Newhall-road; Iron Wharf, 6, Pinfold-lane, Attercliffe & Darnall-road, Sheffield.
Sheffield Steel & Wire Co., Midland Works, Brightside-lane, Sheffield.
Turton, Thomas & Sons, Sheaf & Spring Works, Maltravers-st., Sheffield.
Ward, Blonk & Co. (F. & B. Huntsman), 2, Wicker, Sheffield.
Wardlow, Samuel & Charles, Congress Works, Oughtibridge, Sheffield; & Sheffield.
Wardsend Steel Co. (Benj. Geo. & Wm. W. Wood, Proprietors), Wardsend, Owlerton, Sheffield.
Wood, John, Wisewood Forge & Rolling Mills, Wisewood, Sheffield; & at Oughtibridge Steel Works, Sheffield.
Yeomans & Eadon, High Bridge Forge, Owlerton, Sheffield.

Stoneware Manufacturers.

F.—
G.—Steingut-Fabrikanten.

Calvert, J., Langley Mill, R.S.O.
Evans, R., Ilkeston Pottery, Ilkeston.
Knowles, M. & Son, New Brampton, Chesterfield.
Lancaster, S., Whittington Moor, Newbold, Chesterfield.
Oldfield, J., New Brampton, Chesterfield.
Pearson, J. & Co., Whittington Moor Potteries, Newbold, Chesterfield.

Stranding Telegraph Machine Manufacturers.

F.—Machines à câbler le fil (Fab. de).
G.—Maschinen zum Pflechten von Kabelseilen—Fabr.

Barraclough, T. & Co., Limited. Offices: 8, King-st. Works: Whiteley-st., Rochdale-rd., Manchester. *See index to advertisers.*

Sulphate of Alumina Manufacturers.

F.—Sulfate d'Alumine.
G.—Schwefelsaure Thonerde.

Pochin, Henry, Davis & Co., Wellington Quay, Newcastle.

Sulphate of Copper Manufacturers.

F.—Sulfate de Cuivre (Fab. de).
G.—Kupfervitriol.

Bradbury, S. & Co., Limited, Chemical Works, Russell-road, Rock Ferry, Birkenhead.
Macclesfield Patent Sulphate of Copper Co. (Saml. Orme, man.), The Moss, Macclesfield.
Tharsis Sulphur & Copper Co., Limited, 49, Faulkner-st., Manchester.

Sulphur Manufacturers.

F.—Soufre (Raffineurs de).
G.—Schwefel-Läuterer.

Tharsis Sulphur & Copper Co., Birmingham-road, Oldbury; and 9, Mincing-lane, London, E.C.
Wilson, Alfred E., 102B, Gt. Charles-st., B'ham.

Sulphuric Acid Manufacturers.

F.—Acide Sulfurique (Fab. d').
G.—Schwefelsäure.

Mycock, John Henry, 53, College-road, Masbro', Rotherham.

Taping Machine Manufacturers.

F.—Machines à envelopper le fil (Fab. de).
G.—Maschinen zum Einfassen der Drahtseile—Fabr.

Barraclough, T. & Co., Ld., offices, 8, King-st.; works, Whiteley-st., Rochdale-rd., Manchester. *See index to advertisers.*

Teachers of Electrical Engineering.

F.—Professeurs de Mécanique électrique.
G.—Lehrer der electrischen Ingenieurkunst.

Jamieson, Andrew, C.E., F.R.S.E., &c., *Principal*, College of Science & Art, Glasgow.

Teachers of Mathematics.

F.—Professeurs de Mathematique.
G.—Lehrer der Mathematik.

Alexander, Pet., M.A., 91, Kent-road, Glasgow.
Elder, David, W., 1, Nithsdale-place, Glasgow.
Laing, Alexander, LL.D., Anderston University, Glasgow.
Low, James Barrie, M. A., Kelvinside Academy, Glasgow.
Macrae, F., M.A., Glasgow Academy, Glasgow.
Muir, A., Glasgow Academy, Glasgow.
Muir, T., High School, Glasgow.
Ness, W., 325, Dumbarton-road, Glasgow.
Reid, Wm., M.A., High School, Glasgow.
Smith, A., M.A., 34, Abbotsford-place, Glasgow

Digitized by Google

Teachers of Telegraph and Electrical Sciences.

F.—Professeurs de télégraphie et sciences électriques.
G.—Lehrer der Telegraphie und Electricität.

Jamieson, Andrew, C.E., F.R.S.E., etc. *Principal,* College of Science and Art, Glasgow.

Telegraph Cable Making Machine Manufacturers.

F.—Machines à fabriquer le Câble télégraphique (Fab. de).
G.—Maschinen für Telegraphen-Kabel—Fabr.

Barraclough, T. & Co., Limited, offices, 8, King-st.; works, Whiteley-st., Rochdale-road, Manchester. *See index to advertisers.*
Bastin, F. P. & Co., Yiewsley-wharf, West Drayton.
Davis, J. & Sons, All Saints' Works, Derby.
Dean, T., East Surrey Foundry, Pitlake, Croydon.
Tolman, G., Bell-st., Wolverhampton.
Vulcan Foundry Co., Ld., Fewton-le-Willows.
Wardhaugh & Bulmer, Back-lane, Gallowgate, Newcastle-on-Tyne.

Telegraph Cable Manufacturers.

F.—Câble télégraphique (Fab. de).
G.—Kabel-Fabriken.

GLOVER, W. T. & CO., 25, Booth-st., Manchester.
Hall, W., Pier-road, Erith.
Henley's, W. T., Telegraph Works Co., Limited, Woolwich.
Hooper's Telegraph Works, Mitcham.
Newall, R. S. & Co., 68, Anderston-qy., Glasgow.
Ramsden, Camm & Co., Brighouse, Yorkshire. London office, 72, King William-st. Cable wire. *See index to advertisers.*
Siemens Bros., Limited, Charlton-pier, Woolwich.

Telegraph Companies.

F.—Télégraphes (Compagnies de).
G.—Gesellschaften zur Beförderung von Telegramme.

Direct United States Cable Co., Limited, 24 & 25, Corn Exchange-chambers (Charles B. Wood, manager), Chester.
Eastern Telegraph Co. (The), Limited, 20 Brown-st., Manchester, and H5, Exchange, Liverpool. *See index to advertisers.*
Oriental Telegraph Co., 8, Batavia-buildings, 12, Hockin's Hey, Liverpool.

Telegraph Contractors.

F.—Télégraphes (Entrepreneurs de').
G.—Telegraphenbau—Contractoren.

Bailey, W. H. & Co., Essex-st., Salford, Manchester.
Bergins, W. C. & Co., 77, Queen-st., Glasgow.

Telegraph Contractors—*continued.*

Butler, E., 36, Corn Exchange-chmbrs., Chester.
Butler, E. B., Commerce-court, Liverpool.
Davis, J. & Co., 51, Tyrrell-st., Bradford.
Davis, J. & Son, All Saints' Works, Derby.
Henley's, W. T., Telegraph Works Co., Limited, Woolwich.
Jobson Bros., Phœnix Works, Dudley.
Newall, R. S. & Co., 68, Anderston-qy., Glasgow.
Pitt, T. S. & Co., 18, Waingate, Sheffield.
RADCLYFFE, A. H. W., 5, Carr's-lane, High-st., Birmingham.
Ramsden, Camm & Co., Brighouse, Yorkshire; London office, 72, King William-st. *See index to advertisers.*
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*
TASKER, SONS & CO., New Station-road, Sheffield.
Tompson, Reynolds & Co., Castle Works, Wolverhampton.

Telegraph Engineers of Railway Companies.

F.—Télégraphes (Ingenieurs de chemins de fer).
G.—Telegraphenbau—Eisenbahn-Ingenieure.

Norman & Son, 217 & 223, Argyle-road, Glasgow.

Telegraph Instrument Manufacturers.

F.—Instrumentes télégraphiques (Fab. de).
G.—Telegraphische Instrumente—Fabr.

Bailey, W. H., & Co., Essex-st., Salford, Manchester.
Bourne, J. & S. (Insulators), Denby, Derby. *See index to advertisers.*
Buller & Co. (Insulators), Sherlock-st. Works, Birmingham.
Butler, E. B., Oxford-chambers, 71, Lord-st., Liverpool.
CHADBURN & SON, 71, Lord-st., Liverpool.
Duke, A. H., 4, Hanover-st., Portsea.
Farenden, C., 8, St. Mary's-road, Southampton.
GENT, J. T. & CO., King Richard's-road, Leicester. *See index to advertisers.*
Haines, Montpelier-terrace, Cheltenham.
Hallewell, C., New Briggate, Leeds.
Hannan & Buchanan, 75, Robertson-st., Glasgow.
India Rubber Gutta Percha, & Telegraph Works Co., Limited, 20, Dixon-street, Glasgow.
Mason Bros. & Co., 29, St. Vincent-pl., Glasgow.
Miller, Richard, 54, St. Enoch-square, Glasgow.
Parkes, Jas. & Sons, 5 & 6, St. Mary's-row, Birmingham.
Phillips, E., 63, Wilson-st., Derby.
Scottish Telegraph Construction and Maintenance Co., North Area, Royal Exchange, Glasgow.
SHARPLES, G. 7, Fishergate, Preston. *See index to advertisers.*
Whyte, James, 241, Sauchiehall-st., Glasgow.

Digitized by Google

Telegraph Insulator Manufacturers.

F.—Isolateurs (Fab. d').
G.—Isolatoren-Fabrikanten.

BOURNE, JOSEPH & SON, Denby Pottery, near Derby. London office and show rooms, 6, St. Pancras Station, Euston-road, N.W. Every description of stoneware for chemists and electricians.
Buller & Co., works, Hanley, Staffordshire potteries; and 32 & 33, Queen-st., London, E.C.
Jobson Bros., Phœnix Works, Dudley.
MEADOW (THE) FOUNDRY CO., LIM., Mansfield, Notts.
Slater, Lewis T., 28, Hamilton-st., Birkenhead.
WALKER, SIDNEY F. & OLIVER, 195, Severn Road, Canton, Cardiff.
Whitley Partners, Limited, Hunslet-rd., Leeds.

Telegraph Pole (Iron) Manufacturers.

F.—Poteaux télégraphiques en fer (Fab. de).
G.—Eiserne Telegraphen-Strangen.

Atlas Iron Works Co., Litchurch, Derby.
ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
Badger, John & Co., Stephenson-st., Stephenson-place, Birmingham.
Brotherton, J. & Co., Monmore-green, Wolverhampton.
Dixon, I & Co., Speakland-st., Liverpool.
Hardy & Padmore, Blockhouse, Worcester.
Henley's, W. T., Telegraph Works Company, Limited, Woolwich.
Morton, F. & Co., Limited, 18, George-square, Glasgow.
Russell, J. & Sons, Limited, Crown Tube Works, Wednesbury.
Stewart, A. &. J., 37, Oswald-st, Glasgow.
Taunton, R. H., & Hayward, Heneage-st., Birmingham.
Warden, J. & Sons, Broad-st., Birmingham.
Whitehouse & Co., Globe Tube Wks., Wednesbury.

Telegraph Submarine Engineers.

See also Engineers—Telegraph.

F.—Télégraphes sous-marins (Ingenieurs de).
G.—Telegraphen-Kabel—Ingenieure.

Jamieson, Andrew, C.E., F.R.S.E., &c., *Principal*, College of Science and Art, Glasgow.
Smith, Baxter & Gelpeke (Anglo-American Patent Vulcanite Co., Limited), Brettenham-road., Edmonton. Patent insulated wire and cables for telegraphic, telephonic, submarine, and illuminating purposes.

Telegraph and Telephone Wire Coverers.

F.—Fils télégraphiques recouverts (Fab. de).
G..—Fabriken zum Umspinnen des Drahtes.

RICKARD, W., Ashbourne-road Mills, Derby.

Telegraph and Telephone Wire Manufacturers.

See also Wire Manufacturers.

F.—Fils télégraphiques et téléphoniques (Fab. de).
G.—Draht Fabriken für Telegraphie.

ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
Baker, G. & Co., Chester-st., Birmingham.
Bassett, J., 256, Chapel-st., Salford, Manchester.
Binns, J. & A., West Mount Wire Mills, Halifax.
Bolton, F., & Sons, Oakamoor, Cheadle, Staffordshire.
BOLTON, T., & SONS, Broad Street Metal Works, Broad-st., Birmingham.
Brooks, H. & Co., Regent Works, Queen's-road, Manchester.
Cammell, C. & Co., Limited, Saville-st., Sheffield.
Cooke & Swinnerton, Walney-road, Barrow.
Cooke, W. & Co., Limited, Tinsley Steel and Iron Works, Sheffield.
Cornforth Brothers, 155, Dartmouth-st., B'ham.
Coupe, D. H. Junr. & Co., Tinsley, Sheffield.
Cox Bros. & Holland, Percy-road, Greet, B'ham.
Dixon, T. & Co., Windsor Iron Works, Speakland-st., Liverpool.
EDELSTEN, WILLIAMS & CO., New Hall Works, George-street-parade, Birmingham.
Elliott's Metal Company, Limited, 128, Colemore-row, Birmingham.
EVERITT, A., & SONS, Adderley-st., B'ham.
Fox, S. & Co., Limited, Stocks Bridge Works, Deepcar, Sheffield.
GENT, J. T. & CO., Faraday Works, Leicester. *See index to advertisers.*
GLOVER, W. T. & CO., 25, Booth-st., Manchester. *See index to advertisers.*
Goldthorp, R. & Co., Upper Rawfold's Works, Cleckheaton.
Hall, W., Pier-road, Erith.
Hall-st., Metal Rolling Co. (J. Bisseker, Manager), Hall-st. Works, Birmingham.
Hammerton, E., Victoria-st. East, Halifax.
Haybridge Iron Company, Limited, Sturchley Iron Works, near Dawley, Salop.
Heaton, R., & Sons, Icknield-st. East, B'ham.
Hill, Richard & Co., Newport Wire Mills, Middlesbrough.
Hooson & Rawsons, Old Baths, Peru-st., Adelphi, Salford, Manchester.
Jenkins, Thomas & Leonard, 42, George-street-parade, Birmingham.
Johnson, R. & Nephew, Bradford Iron Works, Bradford, Manchester.
Middlehurst, P., Mill-lane, Crank, Rainford. St. Helen's.
Nettlefolds, Limited, Gibb-st., Deritend, B'ham.
Norton, A. & Co., Hulm Hall-lane, Manchester.
Patchett, G., Sedburgh Mill, Halifax.
Poole, Alex., 61, Princess-st., Birmingham.
Power, F. A., & Co., Midland Wire Mills, Saltley, Birmingham.
Pratt, W. J., Well-lane, Halifax.
RAMSDEN, CAMM & CO., BRIGHOUSE, YORKSHIRE; LONDON OFFICE, 72, KING WILLIAM-ST. *See index to advertisers.*

Digitized by Google

Telegra. & Teleph. Wire Man.—*continued.*

Rickard, Wm., Ashbourne-road Mills, Bridge-st., Mill, and Agard-st. Mills, Derby. *See index to advertisers.*
Rigby, J. & Sons, Cannon-st, Adelphi, Salford, Manchester.
Rollason, C. A. T., & Co., Richard-st., Dartmouth-st., Birmingham.
Royston, J., Son & Co., Lea Bank Wire Mills, Shrogg's-road, Halifax.
Rylands Bros., Limited, 116, Church-st., Warrington.
Scott Bros., Nutsford Vale Works, West Gorton, Manchester.
Shaw, J., Yorkshire Wire Rope and Fencing Works, Soho-street, Eccleshall-road, Sheffield.
Shropshire Iron Company, Limited, Hadley, Wellington, Salop.
Smith, Frederick & Co., Caledonia Works, Halifax. Patent Galvanized High Conductivity Telegraph Wire to all specifications.
Swingler, G & J., 52, Stamforth-st., B'ham.
TAYLER, D. F. & CO., New Hall Works, George-street-parade, Birmingham.
Vivian, H., Hussey & Co., Osler-st., B'ham.
Warden, J., & Sons, Broad-st., Birmingham.
Whitecross Wire and Iron Company, Limited, Milner-st., Warrington.
Wilkes, J., & Sons, Liverpool-st., Birmingham.
Wright, J. & E., Universe Works, Garrison-st., Birmingham.

Telegraph Works.

F.—Usines télégraphiques.
G.—Telegraphen-Fabriken.

Ash, J., & Sons, Rea-st. South, Birmingham.
SHARPLES, G., 7, Fishergate, Preston. *See index to advertisers.*

Telephone Apparatus Manufacturers.

F.—Appareils téléphoniques (Fab. d').
G.—Telephon-Apparate (Fab.)

CUTTING, R. C. & CO., 10, Exchange-arcade, Deansgate, Manchester.
Harrison, Cox-Walker & Co., Darlington. Hunning's Patent Micro Telephone Transmitters.
Nelson, Jas., & Sons, Leeds.
Northern District Telephone Co., Limited, Sunderland. Switch-boards for connecting subscribers to an Exchange.
TASKER, SONS, & COMPANY, New Station-Road, Sheffield.

Telephone Companies.

F.—Compagnies de Téléphones.
G.—Telephon-Compagnien.

Henley's, W. T., Telegraph Works Co., Limited, Woolwich.
Lancashire & Cheshire Telephonic Exchange Co., Limited, 38, Faulkner-st., Manchester.
National Telephone Co., Limited, Wellington-chambers, 40, Bennett's-hill, Birmingham.

Telephone Contractors.

F.—Téléphone (Entrepreneurs de).
G.—Telephon-Contractoren.

Davis, J., & Son, All Saints' Works, Derby.
SHARPLES, G., 7, Fishergate, Preston. G. Sharples undertakes the erection and maintenance of private Telephone lines, or Telephonic exchanges in any part of the country. Telephonic Instruments upon rental or sale outright. *See index to advertisers.*

Tool Handle Makers.

F.—
G.—Stiele und Hefte für Werkzeug.

Willis, William, 34 (back of) Aston-st., B'ham.
Wingrove, George, Victoria Works, River-st., Deritend & 85, Floodgate-st., Birmingham.

Tool Manufacturers.

F.—Outils (Fab. d').
G.—Werkzeug-Fabriken.

Adie, F. W., 32, Horford-st., Birmingham.
Bancroft Bros., 170, Hockley-hill, Birmingham.
Bentall Bros., Maldon, Essex.
Berry, Francis & Sons, Calderdale Iron Works, Sowerby Bridge, Yorkshire.
Burley, B. B., 9, Watson-st., Glasgow.
Cashmore & Moretyn, 104, Vyse-street, B'ham.
Cassell, Samuel, 129, Conybere-st., Birmingham.
Child, Elisha Henry, 7B, Hockley-hill, B'ham.
Collison, W. & Co., Bridge-st. West, Birmingham.
Cooper, Joseph & Son, Lionel-st., Birmingham.
Covington, J. C., 7½, Jennen's-row, Birmingham.
Cuttell, Richard Wm., 240, Aston-road, B'ham.
Douglass, W. & Co., 4, Upper Well-st., Coventry.
Fletcher, D., 29, Mary Ann-st., Birmingham.
Groom, W., 11, George-st., Leamington.
Hamnett, Thos., 55, Phillips'-st., Aston-barracks, Birmingham.
Haynes & Ford, 48, Northampton-st., B'ham.
Humphreys, George Humphry, 61½, Constitution-hill, Birmingham.
Hunt, W. & Sons, Blades Iron Works, Oldbury.
Jackson, Frederick, 126, Pritchett-st., B'ham.
Johnson, Mrs. Jane, 32, Whittall-st., B'ham.
Jones, Wm., 15½, Gt. Hampton-st., Birmingham.
Jowsey Bros. & Co., Tyne Steel & File Works, Sheffield.
Lane, Samuel Francis, 15, Warstone-parade East, Birmingham.
Lloyd, R. & Co., 135 & 136, Steelhouse-lane, Birmingham.
Makin, Jas. Henry, Cupola, Sheffield.
Naish, Arthur John & Sons, 21, 22 & 23, Coleshill-st., Birmingham.
Nash, T. & Sons, Oldbury Works, Oldbury.
Onions, John C., Limited, Bradford-st. & Charles Henry-st., Birmingham.
Phillips, Wm., 131, Barr-st., Birmingham.
Pickard, Joseph Henry, 39 & 40, Woodcock-st., Birmingham.

Digitized by Google

Tool Manufacturers—*continued.*

Preston, Edward, 22, 23 & 24, Whittall-st., Birmingham.
Ryland, Howard & Co., 40, St. Paul's-square, Birmingham.
SMITH & COVENTRY, Gresley Ironworks, Ordeal-lane, Manchester.
TANGYES, LIMITED, Cornwall Works, Soho, & Stephenson-place, Birmingham. Engineers tools.
Timings, David Samuel, 23, Great Hampton-st., Birmingham.
Turton, Thos & Sons, Sheaf & Spring Works, Maltravers-street, Sheffield.
Tyzack, Wm. A. & Co., Hereford-st., Sheffield.
Walker, Joseph, 13 & 14, Augusta-st., B'ham.
Ward, John, 53, Kenion-st., Birmingham.
Warden, F. H., 27 & 28, Lionel-st., Birmingham.
Wills, William, 34 (back of), Aston-st., B'ham.
Wynn, W. & C. & Co., Commercial-st., B'ham.

Tracing Cloth & Tracing Paper Manufacturers.

F.—
G.—

Dewhurst, Samuel & Co., Limited, 21, Dickenson-street, Salford, Manchester; London, 8, Snow-hill, E.C.

Trade Protection Societies.

F.—
G.—Industrie-Schutzvereine.

BLACKHAM & COMPANY. For recovery of debts, enquiries & issuing weekly & monthly gazettes, 29 & 30, Exchange-buildings, Stephenson-place, Birmingham.
Dronfield Tradesmen's Association (H. Coaling, secretary), Sheffield-road, Dronfield.
Macclesfield & Cheshire Trade Protection Society, Roe-st., Macclesfield.
Sheffield Trade Mark Protection Society (J. S. Bartlett, agent), 85, Queen-st., Sheffield.

Tube Makers—Brass & Copper.

F.—Tubes—Laiton et Cuivre.
G.—Röhren—Messing und Kupfer.

Bayley, Wm. Hy., 25, Barr-st., Birmingham.
Bayliss, William, Sheepcote-st., Birmingham.
Benton & Stone, 4 & 5, St. Paul's-square, B'ham.
Birmingham Battery & Metal Co., 79 & 80, Digbeth, & at Selly Oak, Birmingham.
Birmingham Patent Iron & Brass Tube Co., Smethwick, Birmingham.
BOOTH, J. & CO., Sheepcote-st., Birmingham. Telephone No. 311.
Clifford, Charles & Son, Rolling Mills, Fazeley-st.; 11, Snow-hill, & Pershore-road, Dogpool, Birmingham.
Earle, Bourne & Co., Hooper-st., Spring-hill, Birmingham.

Tube Makers—Brass & Copper—*continued.*

Huggins, Wm., 107, Glover-st., Birmingham.
Pane, Jas. & Son, Denmark-st., Birmingham.
WINFIELD, ROBERT WALTER & CO., Cambridge-st. Works, Birmingham; & Holborn Viaduct, London, E.C. Bronze Medal Paris Exhibition, 1878. *See index to advertisers.*

Tube Makers—Iron.

F.—Tubes—Fer.
G.—Röhren—Eisen.

Aird, J., Wellington Tube Works, Gt. Bridge, West Bromwich.
Alexander, Ferguson & Co., 36 & 48, McAlpine-st., Glasgow.
Allan, Jas, Victoria Tube Works, Coatbridge, Glasgow.
Anchor Tube Co., Gas-st., Birmingham.
Appleby & Co., Renishaw Iron Works, near Chesterfield.
ARMSTRONG, STEVENS & CO., 15, Whittall, st., Birmingham.
Arnold & Large, Derby-st., Wolverhampton.
Barnsley, R., Old Hill, Dudley.
Billingsley, T., Walsall-road, Wednesbury.
Binyon, Alfred, 2, Parsonage, Manchester.
Birmingham Battery Co., 79 & 80, Digbeth, Birmingham.
Birmingham Patent Iron & Brass Tube Co., Smethwick.
Blackley, Young & Co., 103, Holm-st., Glasgow.
Blews, W. & Sons, Gress Green-road, West Bromwich.
BOOTH, J. & CO., Sheepcoate-st., Birmingham. Telephone No. 311.
Brotherton, J. & Co., Monmore-green, Wolverhampton.
Broughton, Wm. Hy. & Co. (steam hydraulic & boiler, Alpha Works, Smethwick, Birmingham.
Caledonian Tube Co., Coatbridge, Glasgow.
Cam, J. J., 40, New-st., Worcester.
City Tube Works, 35, Rose-st., S.S., Glasgow.
Clyde Tube Works, 41, Oswald-st., Glasgow.
CROMPTON WINGFIELD (THE), ELECTRIC LIGHT ASSOCIATION, Cambridge-st. Wks., Birmingham; & 49, Farringdon-st., London, E.C. Bronze medal Paris Exhibition, 1878. *See index to advertisers.*
Danks, H. & T., Netherton, near Dudley, Birmingham.
Darling & Taylor, 217, Argyle-st., Glasgow.
Dixon, S. & Son, Leeds.
Dobbs Bros., Dudley-road, Wolverhampton.
Donald, John & Son, 42, Cadogan-st., Glasgow.
Eadie, Jas. & Sons, Clydesdale Tube Works, Rutherglen, Glasgow.
Earle, Bourne & Co., Hooper-st., Spring-hill, Birmingham.
Embrey & Parry (mandrel), 86½, New John-st. West, Birmingham.
EVERITT, ALLEN & SONS, Kingston Metal Works, Adderley-st., Birmingham.

Digitized by Google

Tube Makers—Iron—*continued.*

Galloway, W. & J. & Son, 202, Hope-st., Glasgow.
Gill & Russell, Cyclops Tube Works, Walsall, near Birmingham.
Glasgow Iron & Brass Wire Co., 9, York-buildings, York-st., Glasgow.
Gorbals Works, 20, Buchanan-st., Glasgow.
Govan Tube Co., Broomloan-road, Govan.
Graham, D. & G., 267, Sauchiehall-st., Glasgow.
Griffiths & Billingsley, Wednesbury.
Griffiths, Isaac & Son, Wednesbury.
Harcourt, Robert C. & Son (cased), 223, Moseley-st., Birmingham.
Harris & Pearson, Amblecote Works, Stourbridge.
Headley, Birch & Co., Cumberland Works, Vittoria-st., Birmingham.
Heaton, Ralph & Sons, The Mint, Icknield-st., Birmingham.
Hildick, Mills & Hildick, Walsall Tube Works, Walsall, near Birmingham.
Hudson, Edmunds & Co., Sheepcote-st. Works, Birmingham.
Huggins, John, Watery-lane, Birmingham.
Huggins, Wm., 107, Glover-st., Birmingham.
Hutchison & Co., 9, Oswald-st., Glasgow.
Imperial Tube Co., Birmingham; Works, Grove-lane, Smethwick, Birmingham.
Jones & Mitchell, Saltley Works, Saltley, B'ham.
Laidlaw, R. & Son, 147B, Milton-st., Glasgow.
Laidlaw, Sons & Caine, Fordneuk-st., Glasgow.
Lambert Brothers, Ablewell-st., Walsall, B'ham.
Leslie & Hall, 50, Cadogan-st., Glasgow.
Lewis, E. & Sons, Britannia Works, Monmore-green, Wolverhampton.
Lloyd & Lloyd, Birmingham.
Luttage, W., Victoria Tube Works, Gt. Bridge, West Bromwich.
Mackinnon, R. B., 30, London-st., Glasgow.
Marshall, John & Sons, Glasgow Tube Works, Glasgow.
Marshall & Wylie, Glasgow Tube Works, Swanston-st., Glasgow.
McKinnon & Tannahill, Rochester-st., Glasgow.
McLaren, R. & Co., Canal-street, S.S., Glasgow.
McLellan, John, 77, Warrock-st., Glasgow.
McLeod, Wm. & Co., 30, St. Enoch-square, Glasgow.
Menzies, Jas. & Co., Dalmar-bridge, Glasgow.
Muirhead, A. & Co., 14, Brunswick-lane, Glasgow.
Nokes, Wm., Chester-st., Dartmouth-st., B'ham.
Old, Hill & Co., Rowley Regis.
Parkes, Thomas, 285, Broad-st., Birmingham.
Peyton & Peyton Tube Co., Limited. Registered offices, 96, High-st., Bordesley, Birmingham.
Powell, Chas. Marshall, 37 & 38, Aston-road, & 65, 66 & 67, Regent-st., Birmingham.
Pritchard, T., Friars-st., Merty's Croft, Wednesbury.
Richmond, David, City Tube Works, 35, Rose-st., S.S. Glasgow.
Riddel, W. & Co., 24, W. Howard-st., Glasgow.
Ridgacre Tube Co., Church-lane, Hill-top, West Bromwich.
Robb, G. S. & Co., 99A, Waterloo-st., Glasgow.

Tube Makers—Iron—*continued.*

Roberts, J. & S., Swan & Small Heath Foundries, Swan-villages, West Bromwich.
ROBINSON & CO., Stewkins Iron Works, Stourbridge.
Rowat, A. & Co., 25, Candleriggs, Glasgow.
Russell Bros., Bradford Tube Works, Walsall.
Russell, James & Sons, Crown Tube Works, Wednesbury, Birmingham.
Russell, John & Co., Alma Tube Works, Walsall, Staffordshire.
Skidmore, H. P., Netherton, Dudley.
Smith, E., Brunswick Tube Works, Wednesbury, Birmingham.
Spencer, John, Vulcan Tube Works, Spon-lane, West Bromwich, Birmingham, & 97, Cannon-st., London, E.C.
Stephenson Tube Co., Liverpool-st., Birmingham.
Stewart, Andrew & James, 41, Oswald-st., Glasgow.
Taunton, Richard H. & Hayward, Star Tube Works, Heneage-st., Birmingham.
Tees Side Iron & Engine Works Co., Limited, Middlesborough.
Tonks, William & Sons, 201, Moseley-st., Birmingham.
Turnbull, Stewart & Co., 47, Oswald-st., Glasgow.
Walker, Joseph Parker & Co., 110, Cheapside-st., Glasgow.
WALKER, SAMUEL, Lower Fazeley-st.; warehouse, 3, Church-st., Birmingham. Brazed, Brass & Copper for all purposes, also Seamless Tubes, Wire Tube & Rolling Mills.
Watson, J., 62, Birmingham-st., Oldbury.
Weldless Steel Tube Co. (The), 303 & 304, Icknield Port-road, Birmingham.
Whitehouse, George, Barford-st., Birmingham.
Wilkes, John & Sons, Liverpool-st., Birmingham.
Williams Brothers & Co., 7, Pershore-st. & River-st., Deritend, Birmingham.
Wilson, Jas. & Sons, Coatbridge, Birmingham.
Wilson, John, 20, Buchanan-st., Glasgow.

Turbine & Water Wheel Makers.

F.—Turbines et Roues hydrauliques.
G.—Turbinen und Wasserräder.

Bailey, W. H. & Co., Albion Works, Essex-st., Salford, Manchester.
Bates, T. & Co., Bank Foundry, Sowerby Bridge.
Chadderton & Haigh, Alma Bridge Works, Dukinfield.
Clarke & Sutcliffe, Sophia-st., Rochdale-road, Manchester.
Fell, W. A., Bridge Iron Works, Windermere.
Günther, W., Central Engineering Works, Oldham.
HETT, CHARLES L., Amholme Iron Works, Brigg, Lincolnshire. Patent "Trent" Turbine. *See index to advertisers.*
Key & Fleming, Bank Iron Works, Middleton.
Larmuth, T. & Co., Unwin-st., Cross-lane, Salford, Manchester.

Digitized by Google

Turbine & Water Wheel Mkrs.—*continued.*

McAdam Bros. & Co., 28, Townsend-st., Belfast.
North Moor Foundry Co., Limited, North Moor, Oldham.
Union Engineering Co., 2, Clarence-buildings, Booth-st., Manchester.
Wigg, W. H. & Co., South-green Works, East Dereham, Norfolk.
Williamson Bros., Canal Iron Works, Kendal.
WILSON, J. S., 99, Portugal-st., Glasgow.

Valve Manufacturers.

F.—Clapets (Fab. de).
G.—Ventil-Fabriken.

Aird & Leigh, Ryland-st, Broughton, Salford.
Bailey, W. H. & Co., Albion Works, Salford, Manchester.
Dixon, S. & Son, Leeds Old Brass Works, Leeds.
Haigh, Allan & Co., Winding-road Brass Works, Halifax.
Hulme & Lund, Manchester.
Kinghorn & Co., 28, Brunswick-st., Liverpool. (Metallic).
Sinclair, Geo., Albion Boiler Works, Leith.
Turnbull, Alex. & Co., Glasgow.
Turner, Wm., Adelphi-st., Salford, Manchester.
Williamson, Thomas, Atlas Works, Stalybridge.

Vices—parallel—Wrought and Cast.

F.—Etau.
G.—Schraubstöcke—guss und schmiedeiserne.

MACBRAN, WM., Sheaf Island Works, Sheffield.

Vulcanized Fibre Manufacturers.

F.—Fibre vulcanisée (Fab. de).
G.—Gummifaser-Fabriken.

Binney & Son (sole agents for Scotland), Catherine-st., City-road, London, E.C.; West Howard-st., Glasgow; Broad-st., Birmingham; & Wellington-st., Leeds. *See index to advertisers.*
Smith, Baxter, & Gelpcke (Anglo-American Patent Vulcanite Co., Limited), Brettenham-road, Edmonton.

Wheel Cutters.

F.—
G.—

Carlaw, D., 56, Ropework-lane, Glasgow.
Duncan, G., 7, Argyle-st., Glasgow.
Houston, Wm., 45, John-street, Glasgow.
Leitch, John, 45, John-st., Glasgow.
Llewellins & James, 28, Bath-street, Glasgow.

White Lead Manufacturers.

F.—Blanc de Plomb (Fab. de).
G.—Bleiweiss—Fabr.

Ismay, John & Co., Ouseburn, Lime-st., Newcastle.
James & Co., Ouseburn Lead Wks., Newcastle.

Wire Cord Manufacturers.

F.—
G.—Zwirn-Draht.

Midland Wire Cordage Co. (Matthias Potter, proptr.), Orchard Works, Orchard-la., Sheffield.

Wire Coverers.

F.—Fils recouverts (Fab. de).
G.—Fabrik zum Umspinnen des Drahtes.

RICKARD, W., Ashbourne-road Mills, Derby.

Wire Covering Machine Manufacturers.

F.—Machines à recouvrir les fils.
G.—Maschinen zum Drahtumspinnen—Fabr.

Barraglough & Co., Limited, King-st., Manchester.

Wire Drawers.

F.—Fils (Fab. de).
G.—Draht-Zieher.

Abbey Tintern (The) Wire & Tinplate Co., Tintern, near Chepstow.
Adams, Wm., Cherry Wood-lane, Saltley, B'ham.
Altendorf & Wright, 20, Russell-st., St. Mary's-square, Birmingham.
ARMSTRONG, STEPHENS & CO., 15, Whittal-st., Birmingham.
Ash & Lacy, 41, 42 & 43, Meriden-st., B'ham.
Askham Brothers & Co., Yorkshire Steel Works, Napier-st., Sheffield.
Aspinall, J., South-la. Mills, Elland, Normanton.
Badger, John & Co., Stephenson-st., Stephenson-place, Birmingham.
Bagnall, J., 7, Barford-st.-south, Birmingham.
Baker, G. & Co., Chester-st., Birmingham.
Barber, J. & W., Southowram, Halifax.
Barker, S., 16, Oozells-st.-north, Birmingham.
Barnard, Bishop & Barnards, Norfolk Iron Works, Norwich.
Bateman, J., Parkhouse Mill, Low Moor, North Bierley, Bradford.
Bennett, W., 35, Horsefair, Kidderminster.
Binns, J. & A., West Mount Works, Halifax.
Birmingham Battery & Metal Co. (William Gibbins, Manager), 79 & 80, Digbeth; & at Selly Oak, Birmingham.
Birmingham Small Arms & Metal Co., Adderley-road, Saltley, Birmingham.
Bolton, T. & Sons, 15, Broad-st., Birmingham.
Bolton, T. & Sons, Oakamoor Mills, Cheadle, Staffordshire.
Bottomley & Hirst, Victoria Mills, Brighouse.
Brown, G., Lancaster-rd., North Preston, Preston.
Brown, J. & Co., Park-lane Wire Mills, Preston.
Caldicot Iron & Wire Co., Caldicot, Chepstow.
Cammell, C. & Co., Limited, Cyclops Steel & Iron Works, Saville-st., Sheffield.
Chaplin, William, 233, Park-lane, Birmingham.
Child, Tobias & Co., Hathersage, Derbyshire.

Digitized by Google

Wire Drawers—*continued.*

Christie, George, Ladywell-st., Glasgow, Scotland. Fine Wire—a Speciality.
Clayton, J., Westgate, Cleckheaton, Yorkshire.
CLIFFORD, CHARLES & SON, Rolling Mills, Fazeley-st., Birmingham.
Cocker, J., Blonk-st., Sheffield.
Cocker Brothers, Limited, Nursery-st., Sheffield.
Cocker & Sons, Hathersage, Derbyshire.
Cockroft, W., Quarry Mill, Cleckheaton, Yorkshire.
Cook, R. & Co., 11, St. James'-st., Sheffield.
Cook, W. & Co., Wire Mills & Galvanizing Works, Bank-quay, Warrington.
Cook, W. A. & Co., 32, Oxford-st., Normanton.
Cooper, W., 293, Bradford-st., Birmingham.
Cornforth Brothers, 155, Dartmouth-st, B'ham.
Cooke, W. & Co., Limited, Tinsley Steel & Iron Works, Sheffield.
Coupe, Adie & Hall, British Steel & Iron Wire Works, Tinsley, Sheffield.
Cousland, A. & Co., Glasgow Wire Works, 37, Hunter-st., Glasgow.
Cox Brothers & Holland, Percy-road, Greet, Birmingham.
Crabtree, T., Barrack-st., Sheepscar, Leeds.
Crabtree, T., 38, Thornton-road, Bradford.
Crutchley, W., 8, Barr-st., Birmingham.
Dyson, J. & Co., Tilt Mill, Thurgoland, Sheffield.
EDELSTEN, WILLIAMS & CO., New Hall Works, George-st.-parade, Birmingham. Iron & Steel Wire.
Elliott's Metal Co., Limited, Colmore-row. Works: Selly Oak, Birmingham.
Etherindge, W., 225, Stafford-st., Walsall.
EVANS, T., 18 & 19, Smithfield-st., B'ham.
Everitt, A. & Sons, Kingston Metal Works, Adderley-st., Birmingham.
Fairbrother, J. & Co., Limited, Crown Steel & Wire Mills, Attercliffe, Sheffield.
Fairburn, D., Bank Mill, Mirfield, Yorkshire.
Fairburn, D., Sunny Bank, Battyford, Normanton.
Fearnley, D., Robert-town, Leversedge.
Fencing Works, Soho-st., Ecclesall-rd., Sheffield.
Fox, S. & Co., Limited, Stock's Bridge Works, Deepcar, Sheffield.
GLOVER, W. T. & CO., 25, Booth-st., Manchester.
Goldthorp, R. & C., Upper Rawfold's Work, Cleckheaton, Yorkshire.
Gorrill, John (Britannia Metal), Sidney Works, Matilda-st., Sheffield.
Greening, N. & Sons, Warrington.
Gregory & Bramall, Soho Steel & File Works, Sheffield.
Griffin, E. F. & Co., 82, Spencer-st., Birmingham.
Haggie Brothers, South Shore, Gateshead.
Hall & Pennington, 287, Shalesmore, Sheffield.
Hall-st. Metal Rolling Co. (J. Besseker, Man.), Hall-st. Works, Birmingham.
Hallam Brothers, Butterthwaite Works, Ecclesfield, Sheffield.
Hallam, G. & Co., Havelock Works, Walker-st., Sheffield.

Wire Drawers—*continued.*

Hanson, Dale & Co., Colne-road, Huddersfield.
Harrison, J. & Sons, Cookley Wire Mills, Kidderminster.
Hartley, J. & Co., Newhall Wire Mills, Newhall-road, Attercliffe, Sheffield.
Hayley, S. & Son, High-st. Mill, Cleckenton, Yorkshire.
Healey, Brearley & Healey, Little John Mill, Clifton-bridge, Brighouse.
Heaton & Dugard, 79, Lower Loveday-st., B'ham.
Heaton, R. & Sons, The Mint, Ichnield-st.-east, Birmingham.
Hendry Brothers, 79, Great Clyde-st., Glasgow.
Heyes Brothers, Appleton, Widnes, Lancashire.
Hill, J. C. & Co., Limited, Oakfields Iron Works, Cwmbran, Newport.
Hill, R., Newport Wire & Rolling Mills, Middlesborough.
Hill, T., Clifton-bridge, Brighouse.
Hirst, C., Toft's Mill, Cleckheaton, Yorkshire.
Holdsworth & Marsden, Rawfold Wire Works, Cleckheaton, Yorkshire.
Holt, J., School-st.-Works, Toadlane, Rochdale, Lancashire.
Hope Iron, Steel & Wire Co., Limited, Dallam-lane, Warrington.
Horsfall, Mrs. E., 25½, Market-hill, Barnsley, Yorkshire.
Houghton, W. D., Sankey Wire Mills, Sankey-bridge, Warrington.
Hydes & Wigfull, Limited, Stanley-st., Wicker, Sheffield.
Imperial Wire Co. (Nettlefolds, Limited), Cranford-st., Smethwick, Birmingham.
Jackson, W. & Sons, Sheaf Island Works, Pond-hill, Sheffield.
Jagger, J. & G., Old Wire Mills, Thurgoland, Sheffield.
Jenkins, Thomas & Leonard, 42, George-street-parade, Birmingham.
Johnson, R., Clapham & Morris, 24, Lever-st., Manchester.
Johnson, R. & Nephew, Alderwasley Iron Works, Wirksworth.
Jones & Rooke, 60, Northwood-st., Birmingham.
Kempson, D. J., 313, Broad-st., Birmingham.
Kent, J. & H. & Co., New Bramton, Chesterfield.
Law, S. & Sons, Moorland Mill, Bradford-road, Cleckheaton, Yorkshire.
Lawford, O., Moorside, Cleckheaton, Yorkshire.
Lover, G. & Co., Union Mill, Mount-st., Halifax.
Lewis & Morgan, Wildon Iron Works, Govilon, Abergavenny, Monmouthshire.
Lister, J., Victoria Mills, Brighouse.
Longford Wire, Iron & Steel Co., Limited, Dallam-lane, Warrington.
Lowford, O., High-town, Leversedge.
Mackinder, J. & Co., Carlisle-st.-east, Sheffield.
Marshfield Co. (The), Limited, 79, Glover-street, Birmingham.
Marsden, R., Victoria Mills, Brighouse.
Morton, F. & Co., Limited, 18, George-square, Glasgow.

Digitized by Google

Wire Drawers—*continued.*

Naylor, J., & Co.. Borough Wire Works, Scotland-road, Warrington.
Nettlefolds, Limited, Broad-st., Birmingham.
Overton, F., 34, New-st., Worcester.
Poole, Alex., 61, Princip-st., Birmingham.
Power, F. A. & Co., Midland Wire Mills, Saltley, Birmingham.
Powis, D., Floodgate-st., Birmingham.
Price, Henry Butterill, Attercliffe Wire Works, Sheffield.
Pring, J. & Son, Mount Pleasant Wire Works, Sandbach, Cheshire.
RAMSDEN, CAMM & CO., Brighouse, Yorkshire; London Office, 72, King William-st., E.C.
Ramsden, C., Rowell-bridge, Stannington, Sheffield.
Ramsden, Charles, Loxley Wire Mills, Loxley, near Sheffield.
Reynolds, G., Summerford-brook, Willenhall.
Rhodes, J., 8, Northgate, Bradford.
Rhodes, J., Brook Foot Wire Mills, Horsforth, Leeds.
Rickard, Wm., Ashbourne-road Mills, Derby.
Richardson, J., 1, Bank-buildings, Manchester-road, Bradford.
RIDDELL, W. & CO., 47, Wesleyan-st., Glasgow.
Rigby, G. F., Furnival-st., Sheffield.
Robotham, S., 55, Bradford-st., Birmingham.
Rogers, J., 79, Victoria-st., Belfast.
Rollason, Abel & Son, Bromford Mills, Erdington, Birmingham.
Rollason, C. A. T., 40, Richard-st., Dartmouth-st., Birmingham.
Rowatt, A. & Co., 25, Candleriggs, Glasgow.
Rylands Bros., Limited, 116, Church-st., Warrington.
Scott Bros., Nutsford-vale Works, West Gorton, Manchester.
Sellers, A., West-house, Wyke, Bradford.
Shaw, J. & Sons, Bradford-road, Brighouse, Yorkshire.
Shaw, J., Yorkshire Wire Rope & Fencing Works, Soho-st., Ecclesall-road, Sheffield.
Sheffield Steel & Wire Co., Midland Works, Brightside-lane, Sheffield.
Shelton, A., Stanley-st. Wire Mill, Sheffield.
Shipman, Jabez & Co., Burton-weir, Tinsley-road, Atterley, Sheffield.
Shorthouse, B. & G., Eyre-st., Spring-hill, Birmingham.
Shropshire Iron Co., Limited, Harley, Wellington, Salop.
Sinclair, J., 1A, Shrub-pl, Leith-walk, Edinburgh.
Smith, Fredk. & Co., Caledonia Works, Halifax.
Smith, G. B. & Co., 61, West Regent-st., Glasgow.
Smith, W. & Co., Dallam Wire Works, Warrington.
Spencer, J. R. & Son, Albion Steel Works, Pea Croft, Sheffield.
Stephenson & Co., 2, Exchange-st. East, L'pool.
Stonier, F. & G. W. & Co., 38A, Shude-hill, Manchester.
Stott, F., Hartshead, Normanton.

Wire Drawers—*continued.*

Stott, J. F., Buxton-road, Huddersfield.
Swires, F., Moortop, Checkheaton, Yorkshire.
TAYLER, D. F. & CO., New Hall Works, George-st. parade, Birmingham. Brass & Copper & high conducivity Copper Wire.
Thomson, Sterne & Co., North Woodside-road, Glasgow.
Tyne Wire Drawing Co. (The), South-shore, Gateshead.
Vernon, Jabez & Co., Northern Steel Works, Attercliffe-road, Sheffield.
Vivian, H. H. & Co., 46, George-st., Parade, Birmingham.
Vivian, H. H. & Co. (Wm. Geo. Hughes, manager), 31, Holly-st., Sheffield.
Walker, R., Walker's Mills, Northgate, Cleckheaton, Yorkshire.
Walker, S., Lower Fazeley-st., Birmingham.
Walker, W., Hartshead, Normanton.
Warden, J. & Sons, Broad-st., Birmingham.
Webster & Horsfall, Killmarsh, Chesterfield.
Whitecross Wire & Iron Co., Limited, Milner-st., Warrington.
Whitecross Wire & Iron Co., Limited, 31, Strand-st., Liverpool.
Whiteley, Eli & Co., River-st., Rochdale, Lancashire.
Widdowson, T. & Co., Fitzroy Works, Bright-st., Attercliffe, Sheffield.
Wiggin, H. & Co., 28, Change-alley, Sheffield.
Wilkes, J. & Sons, Liverpool-st., Birmingham.
Wilkinson, S., 34, Harford-st., Birmingham.
Wilson-Hawsworth Ellison & Co., Carlisle-st., Sheffield.
Winterbottom & March, Dearne Wire Mills, Barnsley, Yorkshire.
Wood, J. & Bros., Grove Mills, Brighouse, Yorkshire.
Wood, J. & Sons, Wilkin Royd Mills, Brighouse, Yorkshire.
Wood, W., Little John Mill, Clifton-bridge, Brighouse, Yorkshire.
Woodhead, J., 8, Elland-road, Brighouse, Yorkshire.
Wordsworth, Geo. & Sons, New Wire Mill, Thurgoland, Sheffield.
Wordsworth, J. & Sons, Owlerton, Sheffield.
Wordsworth, J. W. & Co., Oxspring, Penistone, Sheffield.
Worrall, Hallam & Co., Needle Works, Warren-st., Attercliffe-road, Sheffield.
Wright, J. R. jun., Steel Works, Leadmill-st., Rivelin, Sheffield.
Wright, P. & Sons, Broadwell Forge, Oldbury.
Wyllie, Cross & Co., 41, York-st., Glasgow.

Wire Drawers' Plate Makers.

F.—Plaques pour Tréfileurs.
G.—Drahteisen Fabriken.

Finney, Peter & Sons, 26, Potter's-hill, Aston-park, Birmingham.

Digitized by Google

Wire Manufacturers—Brass & Copper.

F.—Fils bronze et cuivre.
G.—Draht—Kupfer und Messing.

CLIFFORD, CHARLES & SON, Rolling Mills, Fazeley-st., and Pershore-road, Dogpool, Birmingham.

CROMPTON, WINFIELD (THE) ELECTRIC LIGHT ASSOCIATION, Cambridge-st. Wks. Birmingham, & 49, Farringdon-st., London, E.C. Manufacturers of Copper Wire for Electrical purposes. Bronze Medal Paris Exhibition, 1878. *See index to advertisers.*

Elliott's Metal Company, Limited, Selly Oak Works, near Birmingham.

Goode, B. W., 21 to 24, St. Paul's-square, B'ham.

Heaton & Dugard, Shadwell-st. Mills, 77 to 80, Lower Loveday-st., Birmingham.

Heaton, Ralph & Sons, The Mint, Icknield-st., Birmingham.

Hall-st. Metal Rolling Co. (J. Besseker, manager), Hall-st. Works, Birmingham.

Lloyd Bros. & Co., 25, Floodgate-st. & Gibb-st., Birmingham.

Newton Keates, & Co., 28, King-st., Liverpool.

Quick, Barton & Co., 24, Fenwick-st., Liverpool.

Ramsden, Camm & Co., Brighouse, Yorkshire. *See index to advertisers.*

RICKARD, W., Ashbourne-road Mills, Derby.

Vivian, Henry Hussey & Co., Osler-st., B'ham.

WALKER, SAMUEL, Lower Fazeley-st., & 3, Church-st., B'ham.

Wire Manufacturers—Galvanised Iron.

F.—Fils Fabr.—Fer galvanisé.
G.—Galvanisirter Eisen-Draht.

Ash, J. & Son, Rea-st. South, Birmingham.

Ash & Lacy, 40, Meriden-st., Birmingham.

Atkey, Pascall & Son, 29, High-st., West Cowes, Cowes.

Barraclough, T. & Co., offices, 8, King-st.; works, Whitley-st., Rochdale-road, M'chester.

Bates, J., West Bute Docks, Cardiff.

Bishton, T., Monmore-green, Wolverhampton.

Bradley & Co., Albion Works, Mount-pleasant, Bilston, Staffordshire.

Bratt, J. & A., Clarence-st. Works, W'hampton.

Bullas, S. W., 5, St. John's-road, Kate's-hill, Dudley.

Cook, W. & Co., Wire Mills & Galvanizing Wrks., Bank Quay, Warrington.

Davies, E., Crown Galvanised Iron Works, Cannock-road, Wolverhampton.

Ensor & Thomas, Ettingshall, Wolverhampton.

Evans, F. & C., Church-lane, Wolverhampton.

Cooke, Wm. & Co., Tinsley Steel, Iron & Wire Works, Sheffield.

Fellows, S. J. & E., Vulcan Works, W'hampton.

Gospel Oak Iron & Galvanized Iron & Wire Co., Wolverhampton.

Heaton, Ralph & Sons, The Mint, Icknield-st., Birmingham.

Wire Manufac.—Galvan. Iron—*continued.*

Hill & Chilton, Pearson-st., Wolverhampton.

Hunt, H. & F., Pountney-st., Wolverhampton.

Jones Bros. & Co., Ablow-st., Wolverhampton.

Johnson, Richard & Nephew, Bradford Iron Works, Bradford.

Lloyd, S. & Co., Drayton-st. West, W'hampton.

Lysagt, J., St. Vincent Works, St. Philip's, Bristol.

Morris, W., 41, Cock-st. West, Birmingham.

Motlow, J., Dudley-st., Bilston.

Peters & Taylor, Redcliff-st., Bristol.

Pinson & Evans, Dudley-road, Church-lane, Wolverhampton.

RAMSDEN, CAMM & CO., Robin Hood Mill, Brighouse, Yorkshire.

Rose, D., Moxley, Wednesbury.

Russell, J. & Sons, Limited, Crown Tube Works, Wednesbury.

Ryland Bros., Limited, 116, Church-st., Warrington.

Shropshire Iron Co., Lim., Hadley, Wellington, Salop.

Smith & McLean, Gartcosh Rolling Mills, Coatbridge, Lanarkshire.

Stewart, J. & Son, Pountney-st., W'hampton.

Taylor, S. & Co., 145, Lionel-st., Birmingham.

Tupper & Co., 6, Berkley-st., Birmingham.

Vaughan, J., Cave-st., St. Paul's, Bristol.

Vernon & Ewens, Central Iron Works, Cheltenham.

Wall, C. & Son, Lower Fazeley-st., B'ham.

Walsh, O. S., 153, Dudley-road, Wolverhampton.

Wedge, E., 30, Stafford-st., Willenhall, near Wolverhampton.

Whitecross Wire & Iron Company, Limited, Milner-st., Warrington.

Wolverhampton Corrugated Iron Co., Church-lane, Wolverhampton.

Wright, W. B. & Co., St. Philip's Marsh, Bristol.

Wire Manufacturers—Iron.

F.—Fils—Fer.
G.—Draht—Eisen.

ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.

Askham Bros. & Wilson, Limited, Yorkshire Steel Works, Napier-st., Sheffield.

Binns, J. & A., West Mount, Wire Mills, Halifax.

Braby, F. & Co., Limited, 8, Hatton-garden, Liverpool, and Garngad Works, Glasgow.

Christie, Geo., Ladywell-st., Glasgow. Special for machines.

Cook, Williams & Co., Bank-quay, Warrington.

Cornforth Bros., 155 & 156, Dartmouth-st., Birmingham.

Coupe, Addy & Hall, Tinsley, Sheffield.

Cox Bros. & Holland, Premier Works, Percy-road, Greet, Yardley, Birmingham.

Dilwynn, & Co., Cambrian-place, Swansea.

Digitized by Google

Wire Manufacturers—Iron—*continued.*

EDELSTEN, WILLIAMS & CO., George-st., Birmingham.
Fairbrother, Jas. & Co., Limited, Brown Steel & Wire Mills, Bessemer-road, Attercliffe, Sheffield.
Fox, Sam. & Co., Limited, Stockbridge Works, Stockbridge, Sheffield.
Hartley, John & Co., Newhall Wire Mills, Newhall-road, Attercliffe, Sheffield.
Heyes Bros., Appleton, Widnes, near Warrington.
Highfield, George & Co., 13, Union-st. & Havelock's Works, Walker-st., Sheffield.
Hyde, J., 14, George-st., Parade, Birmingham.
Imrie, D., Bank-chambers, Temple-st., Swansea.
Lambert, C. & Co., Port Tennant Copper Works, Swansea.
Mabbett, George, 19, Vaughton-st. South, Birmingham.
Mackinder, J. & Co., Carlisle-st. East, Sheffield.
McKenzie & Smith, 30, George-st., Parade, Birmingham.
Mountain, Wm. & Sons, Trafalgar Works, Vincent-st., Newcastle.
Nettlefolds, Limited, Berkley-st. Mills, B'ham.
Poole, Alex., 61, Princip-st., Birmingham.
Power, F. A. & Co., Midland Wire Mills, Saltley, Birmingham.
Ramsden, Camm & Co., Brighouse, Yorkshire. *See index to advertisers.*
Ramsden Chas., Rowell-bridge, Stannington, Sheffield.
Richardson & Co., Copper Ore Wharves, Swansea.
RICKARD, W., Ashbourne-road Mills, Derby.
Rollason, Carmi A. T. & Co., 40, Richard-st., Dartmouth-st., Birmingham.
Rowland, Mrs. E., 19, St. Anne-st., Chester.
SCHULTE, CHAS. (agent), Exchange-buildings, Stephenson-place, Birmingham. Manufacturers of wire rods, telegraph & rope wires.
Shaw, John, Yorkshire Iron & Wire Works, Soho-st., Ecclesall-road, Sheffield.
Sheffield Steel & Wire Co., Sylvester-gardens, Arundel-st.; town office, 36, Angel-st., Sheffield.
Shipman, Jabez & Co., 128, Carlton-road, Attercliffe, Sheffield.
Smith, Fredk. & Co., Caledonia Works, Halifax.
Smith, Robert & Co., 74, Eyre-st., Sheffield.
Smith, Wm. & Co., 49, Bailey-st., Sheffield, & Mill House Works, Penistone, Sheffield.
Swansea Vale Spelter Co., Limited, Swansea.
Tindale Spelter Co., Newcastle-on-Tyne.
Villiers Spelter Co., Limited, Swansea.
Vivian & Sons, Hafod Works, Swansea.
Waite, Josiah & Thos., Morville-st., B'ham.
Webster & Horsfall (Thos. Geo. Richardson, manager), Killamarsh, Chesterfield.
Williams, Foster & Co., Morfa Copper Works, Swansea.
WILSON, ALFRED E., 102B, Gt. Charles-st., Birmingham.

Wire Manufacturers—Steel.

F.—Fils (Fab. de)—Acier.
G.—Draht-Fabriken—Stahl.

ARMSTRONG, STEVENS & CO., 15, Whittall-st., Birmingham.
Christie, George, Ladywell-st., Glasgow. Special for Machines.
Cocker & Sons, Hathersage, Sheffield.
Cook, Williams & Co., Bank-quay, Warrington.
Comforth Bros., 155 & 156, Dartmouth-st., Birmingham.
Mahbett, George, 19, Vaughton-st. South, B'ham.
McKenzie & Smith, 30, George-st. Parade, B'ham.
Nettlefolds, Limited, Berkley-st. Mills, B'ham.
Power, F. A. & Co., Midland Wire Mills, Saltley Birmingham.
RAMSDEN, CAMM & CO., Brighouse, Yorkshire,
Rollason, Carmi A. T. & Co., 40, Richard-st., Dartmouth-st., Birmingham.
Schulte, Charles (Agent), Exchange-buildings, Stephenson-place, Birmingham.
Waite, Josiah & Thomas, Mowille-st., B'ham.

Wire Rod Importers.

F.—
G —

LANDER & LARRSON, 164, Edmund-st., Birmingham. Importers of best Swedish Charcoal, Iron & Steel Wire Rods of high conductivity, specially prepared for electrical purposes.

Wire Rope Manufacturers.

F.—
G.—Draht-Seile.

Barton, Wm. & Co., 153, S. Scotland-st., Glasgow.
Black, John & Co., 204, Elliot-st., Glasgow.
Glover, W. J. & Co., 76, W. Howard-st., Glasgow.
Gourock Rope Works Co., 11, West-st., Glasgow.
Henderson, Charles & Co., 9, York-st., Glasgow.
Hume, Wm., 195, Buchanan-st., Glasgow.
Hutcheson & Co., 9, Oswald-st., Glasgow.
Munro, P. & Co., 180, W. Regent-st., Glasgow.
Newall, R. S. & Co., 68, Anderston-quay, Glasgow.
Nimmo, W., 2, Oswald-st., Glasgow.
Preston, J. A. & Co., Preston-st., London-road, Glasgow.
Rowatt, Alex. & Co., 25, Candleriggs, Glasgow.
Scott Bros., 23, Crookston-st., Glasgow.
Seton, Jas. & Co., 99, W. Nile-st., Glasgow.
Stewart, T. & J. & Co., 55 to 57, Anderston-quay, Glasgow.
Stewart, J. T., 102, Bath-st., Glasgow.
Thomson, Arch. & Co., 58, W. Howard-st., Glasgow.
Walker, T. W. & J., 21, W. Nile-st., Glasgow.

Wire Staples Makers.

F.—Crochets pour fils de fer.
G.—Draht-Krampen.

GOODAL, A. & SON, Brighouse, Birmingham.

Digitized by Google

Wire Workers and Weavers.

F.—Fils (Façonneurs de).
G.—Draht-Webereien.

Aldhous, William James, 116, Bradford-st., Birmingham.
Artingstall, George & Co., Wilderspool-causeway, Latchford, Warrington.
Baker, Charles, 5, Skinner-st., Birmingham.
Baxter, G., 22, Churchgate, Leicester.
Bellamy, Thomas, 211, Aston-road, Birmingham.
Birmingham Night Refuge & Homes for Destitute & Working Boys (A. V. Fordyce, F.S.S., hon. sec.) 111, Alcester-street, Birmingham.
Bott, George, 60, Skinner-lane, Birmingham.
Braby, Fred. & Co., Limited, 20, Great Clyde-st., Glasgow.
Bromwich, William, 7, New John-st., B'ham.
Boulton & Paul, Norwich.
Brownlie & Murray, Killeam-st,, Possil-park, Glasgow.
Busby, Edwin, 9 & 10, Woodcock-st., B'ham.
Busby, George, 14, Aston-st., Birmingham.
Carter, Henry William, 108, Longmore-st., Birmingham.
Cousland, A. & Son, 3, Mitchell-st., Glasgow.
Croggon & Co., 59, George-square, Glasgow.
Dempster, Moore & Co., 49, Robertson-st., Glasgow.
Dick, Alex. & Co., 105, Stockwell-st., Glasgow.
English Cable Screw Wire Co., 5, Oxendon-st. Leicester.
Fowler & Sons, 52, 54 & 56, Lawley-st., B'ham.
Greenwood, D., 29, Church-st. West., Macclesfield.
Gretton, Benj. & Co., 12, Prospect-row, B'ham.
Hobday, C., Sansome-st., Worcester.
James, Mrs., 97, High-st., Dudley.
James, G. F., Horseley Fields, Wolverhampton.
Johson, Richard, Clapham & Morris, wire malt kiln floors, mining screens, & paper machine wires, Manchester.
Johnstone, James, 51, St. Vincent-st., Glasgow.
Lawrie, Alexander & Co., 44, Moor-st., B'ham.
Lawrie, A., 12, Sussex-st., Nottingham.
Leitch, Arch., 30, E. Clyde-st., Glasgow.
Lonsdale, M. & Co., Cecil-st. Works, B'ham.
Lysaght, John (galvanized); chief offices & works, St. Vincent's Galvanized Iron Works, Bristol, and sheet rolling mills, Swan Garden iron Works, Wolverhampton; London office, 28, Gracechurch-street, E.C.
Main, A. J. & Co., 25, Hope-st., Glasgow.
Massey, T. T., 7, Clumber-st., Nottingham.
McDonald, Robt., 45, Union-street, Glasgow.
McKenzie & Smith, 30, George-st. Parade, Birmingham.
McTaggartt, P., 12, Anderson-st., Gallowgate, Glasgow.
Mitchell, G., Linby, Nottingham.
Munro, P. & Co., 180, W. Regent-st., Glasgow.
Nichols, Joseph & Son, 162 to 165, Cheapside, Birmingham.
Nicholson, D., 132, Kennedy-street, Glasgow.
Perskith, Jas., 22, Market-place, Manchester.

Wire Workers and Weavers—*continued.*

Petty, James & Son, 20½, Moor-st., Birmingham.
Powis, David, 34, Floodgate-st, Birmingham.
Pring & Son, Mount Pleasant Works, Elworth, Sandbach.
RIDDELL, W. & Co., 47, Wesleyan-street, Glasgow.
Roberts, H., 46, Bardowie-st., Glasgow.
Robotham, Saml., 55, 56 & 57, Bradford-st., Birmingham.
Boosini, A., 125, Barrack-st. Glasgow.
Rowat, Alex. & Co, 25, Candleriggs, Glasgow.
Rouse, J., 11, Albert-st., Mansfield.
SILK, OWEN J., 41, Auckland-road, Camp-hill, Birmingham. Agent for R. R. Loveday & Son's patent spring horse collar.
Sim, Leekie & Co., 55, Bath-st., Glasgow.
Small, William, 68½, Moseley-st., Birmingham.
Staniar, J. & Co., 1, Mary-st., Strangeways, Manchester.
Stevenson, John, 266, Argyle-st., Glasgow.
Taylor, James, 68, Lower Essex-st., B'ham.
Tyler, John, 56, Lee Bank-road, Birmingham.
Tetlow, H., Miles Plating Wire Works, Varley-st., Oldham-road, Manchester.
Venables, George, Common, Sandbach.
Walker, T. W. & J., 21, W. Nile-st., Glasgow.
Watt, C. & Co., 30, W. George-st., Glasgow.
Wells Wire Quilting & Shoe Tip Co., Oxenden-street, Leicester.
Whiteley, B., 35, Bridgewater-st., Salford, Manchester.

Zinc Manufacturers.

F.—Zinc (Fab. de).
G.—Zink-Fabrikanten.

Anderson & Munro, 136, Bothwell-st., Glasgow.
Anderson, Jas., 69, Stockwell-st., Glasgow.
Bain, W. & A., 61, William-st., Anderston.
Barrie, John, 167, Holm-st., Glasgow.
Braby, Fred & Co., Limited, 20, Great Clyde-st., Glasgow.
Chalmers & Tosh, 197, 199, 201, Buchanan-st., Glasgow.
Chubb, W. H., 349, High-st., West Bromwich.
Clark, Wm. & Son, 44, John-st., Glasgow.
Clay, Mrs. P., 5, Chain-lane, Newark.
Croggon & Co., 59, George-st., Glasgow.
Dougans, Andrew & Son, 25, Dunlop-st., Glasgow.
Fisher, C. M., 108, Cambridge-st., Glasgow.
Fulton & Walker, 101, Govan-st., Glasgow.
Hall, J., 348, Spon-lane, West Bromwich.
Hallett, H. & F., 43, Snow-hill, W'hampton.
Heath, H., 16, Alfred-st. Central, Nottingham.
Henderson, C. & Co., 9, York-st., Glasgow.
Hendry, Wm. & Son, 81, Bothwell-st., Glasgow.
Holmes, A., 52, Nelson-st., S.S., Glasgow.
Irwin & Campbell, 13, Norfolk-st., Glasgow.
Jones, D., 62, Manvers-st., Nottingham.
Lawrence, Jas., 38, Montrose-st., Glasgow.
McHaffie, J. & Co., Calderwood-st., Glasgow.

Digitized by Google

Zinc Manufacturers—*continued.*

McWhannel, E. & Co., 10, N. Albion-street, Glasgow.
Murray, R. C., 3 to 19, Carlton-court, Glasgow.
Nuttall, J. Clerkson's-alley, Back-lane West, Mansfield.
Paterson, Wm. & Son, 54, N. Hanover-st., Glasgow.
Pepper, M., Pepper-st., New Basford.
Selanders & Paton, 59, N. Frederick-street, Glasgow.
Shevyn, H., 3, Short-st., Walsall.
Stevenson, Wm. & Co., 74 to 80, Brown-st., Glasgow.
Stewart, Jas. & Son, 7, Warwick-st., Glasgow.
Sutherland, Angus, 24, Oxford-st., Glasgow.
Walker, T. W. & J., 21, West Nile-street, Glasgow.
Walker, Geo., 140, Pollok-st., Glasgow.
Ward, W., Skinner-st., Wolverhampton.
Wheeler, J., 315, Soho-road, Handsworth.
Younger, John, 9, Centre-st., Glasgow.

Zinc Merchants.

F.—Zinc (Marchands de).
G.—Zink-Händler.

Ash, Thomas & Co., 37, Cannon-st. & Needless-alley, Birmingham.
Barnard, Hy. Augustus, 1, Cheapside, B'ham.
Croggon & Co., 42, Upper Thames-st., London, E.C., 2, Goree Piazzas, Liverpool, & Glasgow.
Davis, J. & Co., 51, Tyrrell-st., Bradford.
Edwards, S. A. & Co., 6, Gt. Charles-st., B'ham.
Gilbody, Alex. Hy., 51 to 53, Bridge-st. Manchester.
Holman, Rogers, Michell & Co., City-buildings, Old Hall-st., Liverpool.
Hutchison & Co., 9, Oswald-st., Glasgow.
Norton, J. & Son, 117 & 119 Queen-st., Sheffield.
Rowe, Jas. E. & Co., 192, High-st., Exeter.
Scott, F. E. B. & Son, 21, Strand-st., Liverpool.
Taylor, S. & Co., 145, 146 & 147, Lionel-st., Birmingham.
Wilson, Alfred E., 102B, Gt. Charles-st., Birmingham. Zinc Cylinders, Plates, Ashes & Oxides.

Digitized by Google

MONEY

THE LABOUR

Now ready, demy 8vo, cloth, 260 pages. Price 5s.

The Law relating to Electric Lighting:

BEING THE ELECTRIC LIGHTING ACT, 1882,

WITH A CONTINUOUS COMMENTARY,

EXPOSITORY AND CRITICAL;

ALSO, A GENERAL INTRODUCTION, EXPLAINING ITS SCOPE AND PROBABLE WORKING,

AND ELUCIDATING ITS PROVISIONS, WITH SPECIAL REFERENCE TO THE EVIDENCE GIVEN BEFORE THE SELECT COMMITTEE OF THE HOUSE OF COMMONS;

AND AN APPENDIX

CONSISTING OF THE RULES OF THE BOARD OF TRADE ISSUED UNDER THE POWERS THEREBY GRANTED,

TOGETHER WITH SOME NOTES AND SUGGESTIONS, AND A FORM OF PROVISIONAL ORDER OR LICENSE,

By GEORGE SPENCER BOWER, B.A.
Of the Inner Temple, Barrister-at-Law;
AND
WALTER WEBB,
Solicitor of the Supreme Court.

London:—SAMPSON LOW, MARSTON, SEARLE & RIVINGTON,
Crown Buildings, 188, Fleet Street.

SAVED.

USEFUL RULES AND TABLES,

FOR ENGINEERS AND OTHERS,

By WILLIAM JOHN MACQUORN RANKINE, LL.D., F.R.S.

LATE REGIUS PROFESSOR OF CIVIL ENGINEERING IN THE UNIVERSITY OF GLASGOW.

SIXTH EDITION, THOROUGHLY REVISED,

WITH APPENDIX: TABLES, TESTS, AND FORMULÆ FOR THE USE OF ELECTRICAL ENGINEERS.

By ANDREW JAMIESON, C.E., F.R.S.E.

CONTENTS OF APPENDIX:—

I. Formulæ of the Absolute Units: Practical, Electrical, Mechanical, Heat, and Light Units.
II. Electro-Chemical Equivalents, Electrolysis, Heat, and Energy of Combustion.
III. Practical Methods of Electrical Measurements.
IV. Electric Conductors: Copper, &c.
V. Insulators: Guttapercha, &c.
VI. Batteries.
VII. Submarine Cables.
VIII. Aërial Land Lines.
IX. Electric Lighting and Transmission of Power.

With Numerous Diagrams, crown 8vo., 10/6.

MANUALS FOR ENGINEERS BY W. J. MACQUORN RANKINE, LL.D. F.R.S.,

In Crown 8vo. Cloth.

1. Applied Mechanics. *Tenth Edition.* 12*s.* 6*d.*
2. Civil Engineering. *Fourteenth Edition.* 16*s.*
3. The Steam Engine and other Prime Movers. *Tenth Edition.* 12*s.* 6*d.*
4. Machinery and Mill-Work. *Fourth Edition.* 12*s.* 6*d.*
5. Useful Rules and Tables for Engineers. With Appendix for Electricians by Principal Jamieson, C.E., F.R.S.E. *Sixth Edition.* 10*s.* 6*d.* *(See above.)*
6. A Mechanical Text-Book, by Professor Rankine and E. F. Bamber, C.E. With numerous Illustrations. *Second Edition.* 9*s.*
7. Professor Rankine's Miscellaneous Scientific Papers. With Memoir by Prof. Tait, M.A., and Fine Portrait on Steel. Royal 8vo. handsome cloth, 31*s.* 6*d.* (The Memorial Volume.)

"No more enduring Memorial of Professor Rankine could be devised than the publication of these papers....The collection is most valuable on account of the nature of his discoveries and the beauty and completeness of his analysis....The volume exceeds in importance any work in the same department published in our time."—*Architect.*

London: CHARLES GRIFFIN & COMPANY, Exeter-street, Strand.

Digitized by Google

Established 1762.

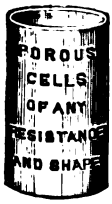
C. T. MALING,
FORD POTTERY,
NEWCASTLE-ON-TYNE.

Established 1762.









Special Manufacturer of Porous Ware of any required resistance, and of Semi-Porcelain Insulators of any desired shape.
Manufacturer of exclusive shapes to H.M. Government, The Electric Lighting Companies and Electrical Engineers.
London Sample Rooms: 20, BARTLETT'S BUILDINGS, HOLBORN CIRCUS, E.C.

J. A. BERLY'S

BRITISH

ALPHABETICAL DIRECTORY.

JAMES BOOTH & CO.,

GENERAL TUBE MAKERS,

ALL SPECIALITIES IN TUBING, MOULDINGS, &C., FOR ELECTRICAL APPLIANCES.

SHEEPCOTE STREET TUBE & ROLLING MILLS,

TELEPHONE No. 311. BIRMINGHAM.

Digitized by Google

Silver Medal, International Electric Exhibition, 1882.



Contractors to H. M. Postmaster-General, the Indian Government, the principal Railway, Telephone & Electric Light Companies.

MANUFACTURERS, BY PATENTED PROCESSES, OF

GLOVER'S PATENT COVERED GUTTA PERCHA WIRE FOR LEADING-IN, TUNNEL, AND UNDERGROUND WORK.

GLOVER'S PATENT COVERED IRON WIRE for AËRIAL LINES.

FANCY TELEPHONE WIRE AND TERMINAL CORDS.

SILK AND COTTON COVERED WIRE OF ALL CLASSES.

SPECIAL MAKES OF ELECTRIC LIGHT LEADS, CABLES AND MULTIPLE WIRE FOR THE VARIOUS SYSTEMS.

ALL CLASSES OF

AËRIAL & UNDERGROUND CABLES,

AND

SPECIAL ANTI-INDUCTION CABLES FOR THE TELEPHONE.

WALTER T. GLOVER & CO.,

Insulated Electrical Wire & Cable Makers,

25, BOOTH STREET, MANCHESTER,

WORKS:—SALFORD.

ESTABLISHED 1868.

Digitized by Google

BRITISH

ALPHABETICAL SECTION.

A.

Abbey Tintern (The) Wire and Tinplate Co., Tintern, near Chepstow.
Abbot's Foundry Company, Abbot's Iron Works, Falkirk.
Abbott Brothers, electrolier lamp & lustre manufacturers, 22, Dean-street, Soho, London, W.
Abbott & Co., steam engine boiler makers, Newark.
Abbott, John & Co., Limited, copper merchants, Park-works, Gateshead.
Abbott, J. & Co., mechanical engineers, 2, Suffolk-lane, London, E.C.
Abbott, T., rope & twine manufacturer, 42, Chester-gate, Macclesfield.
Abbotson & Smith, air-tight glass case makers, 101, Leadenhall-street, London, E.C.
Abel & Imray, patent and design registration agents, 23, Southampton-buildings, London, W.C.
Abell & Williams, steel merchants, Frodsham-street Bridge, Chester.
Abell, William, mechanical engineer, 110, Cannon-street, London, E.C.
Abercrombie & Son, brass & copper founders, 30, 32, & 36, Whitfield-street, London, W.
"Abyssinian" Tube Wells, tube makers, 100, Bunhill-row, London, E.C.
Acaster, A. J., & Co., engineers, Princess works, Sheffield. Specialities—Massive 14-horse power vertical steam engines (inverted cylinder 12½ bore), price, £95 for driving dynamo electric machines Patentees of the Acaster rails & joints for railways. The Acaster patent quick speed, direct acting, and geared punching and shearing machine.
Acme Cement Co., composition makers, &c., 25, Old Jewry, London, E.C., and 154A, Ormside-street, London, S.E.
Adam, D. C., & Co., boiler makers, 23, Mair-street, Glasgow.
Adam, W. Jas., & Co., india rubber merchants, 196, St. Vincent-street, Glasgow.
Adam & Small, glass manufacturers and merchants, 193, Sauchiehall-street, Glasgow.
Adam & Son, electric bell manufacturers, 57, Haymarket, London, S.W.
Adams, Arthur, & Son, brass founders, 27 & 28, Northwood-street, Birmingham.
Adams & Co., oil merchants, 40 & 41, Upper Thames-street, London, E.C.
Adams & Son, mechanical engineers, 41 & 42, Marshall-street, Golden-square, London, W.
Adams & Wood, leather driving band makers, 132, Upper Thames-street, London, E.C.
Adams, W. & T., earthenware manufacturers, Tunstall, Stafford.
Adams, Edward James, electro plater and gilder, 81A, Bull-street, Birmingham.
Adams, Henry, mechanical engineers, 61, Queen Victoria-street, London, E.C.
Adams, John, electric bell fitter, 37, Neal-street, Long-acre, London, W.C.
Adams, Joseph Key, oil merchant, 20, Whittall-street, Birmingham.
Adams, Professor W. G., F.R.S., electrician, physical laboratory, King's College, London, W.C.
Adams, Robert, brass and copper founder, 7, Great Dover-street, London, S.E.
Adams, William, wire drawer, Cherry Wood-lane, Saltley, Birmingham.
Adams, William, bolt & nut manufacturer, 161, Moor-street, Birmingham.
Adamson, Daniel, & Co., steam engine boiler makers, Dukinfield, near Manchester.
Adamson, D., & Co., boiler makers, 65, West Regent-street, Glasgow.
Adamson, D., & Co., mechanical engineers, 5, Westminster-chambers, London, S.W.
Adamson, Joseph, & Co., steam engine boiler makers, Hyde, near Manchester.
Adamson, J., & Co., steam engine boiler makers, Woodend, Hyde, Cheshire.
Adderly, T., oil merchant, 142, Newton-street, Macclesfield.
Adderley, William A., earthenware manufacturer, Daisy Bank Works, Longton, Stafford.
Addington & Albany Works, drain pipe (stone-ware) manufacturers, Addington-square, Camberwell, London, S.E.
Adie, F. W., tool maker, 32, Harford-street, Birmingham.
Adie, Patrick, mathematical instrument maker, 15, Pall Mall, London, S.W.
Adkins, H., & Sons, electro-plate manufacturers and dealers, 4, Thavie's Inn, London, E.C.
Adkins, H., & Sons, electro-gilders and platers, 12, Weaman-row, Birmingham.

Digitized by Google

Adkins, Thomas, & Co., manufacturing chemists, Smethwick, Birmingham.
Adshead, W. P., manufacturing chemist, Derby House, Belper.
Aëronautical Society of Great Britain, Maidenstone-hill, Greenwich, London, E.
Ætno Steel Works, steel manufacturers, Forge-yard, Savile-street east, Sheffield.
Ahrbecker, Hy., C. & Son, mechanical engineers, 117, Stamford-street, London, S.E.
Aiano, Chas., sen., wire worker & weaver, 161, Poplar High-st., London, E.
Aiano, Edwin, wire worker & weaver, 65, Upper East Smithfield, London, E.
Aidney, Griffith, & Co., earthenware manufacturers, High-street, Longton, Stafford.
Ainsworth, Taylor, & Co., electro-plate manufacturers & dealers,78, Ford-street, Hockley, Birmingham.
Aird & Leigh, valve manufacturers, Ryland-street, Broughton-road, Salford.
Aird & Thomson, chronometer makers, 139, Buchanan-street, Glasgow.
Aird, J., tube manufacturer, Wellington Tube Works, Gt. Bridge, West Bromwich.
Aitken, Thos., & Son, driving band makers (cotton), Helmshore, near Manchester.
Aitkenhead, Geo., glass manufacturer & dealer, 260, Dumbarton-road, Glasgow.
ALABASTER, H., editor of the *Electrical Review*, 22, Paternoster-row, London, E.C.
Aland, Henry, mechanical engineer, 46A, Commercial-road, Lambeth, S.E.
Albert Iron Co., (Hunter & Black), screw makers, Albert Works, Whifflet, Coatbridge, Glasgow.
ALBION LAMP CO., lamp manufacturers, Aston-road, Birmingham.
Albion Lamp Co., electro lamp & lustre manufacturers, 69, Hatton-garden, London, E.C.
Albo-Carbon Light Co., 132B, Horseferry-road, Westminster, London, S.W.
Alder, Hy., Brooke & Co., grease manufacturers, 60, Fenchurch-st., London, E.C.
Alder, Thos., electric bell fitter, 12, High Bridge, Newcastle.
Aldhous, William James, wire worker and weaver, 116, Bradford-street, Birmingham.
Aldred, Shirley (William Kirk, man.), manufacturing chemist, Norwood, Killamarsh, Chesterfield.
Aldrews, W., electric bell maker, Hunger-hill-road, Nottingham.
Aldridge, Wm. V., oil merchant, 7, Islington-green, London, N.
Alexander, E., & Sons, copper merchants, 43, West Campbell-street, Glasgow.
Alexander, Ferguson & Co., sealing wax manufacturers, 38, McAlpine-street, Glasgow.
Alexander, Ferguson & Co., tube makers, 36 & 48, McAlbine-street, Glasgow.
Alexander, W., & Son, electro-platers, 109, Buchanan-street, Glasgow.
Alexander, E. P., Telegraph Instrument Patent Agent, 36, Southampton-buildings, Chancery-lane, London, W.C.
Alexander, J. E., mechanical engineer, 133, Back Church-lane, London, E.
Alexander, Pet., M.A., teacher mathematics, 91, Kent-road, Glasgow.
Alexander, T., manufacturing chemist, 11, W. Nile-street, Glasgow.
Alison, Gallaway & Co., steam engine boiler makers, Macus-street, Birkenhead.
Allan, F. & Son, electro-plate manufacturers and dealers, Froeth-street-corner, Icknield-square, B'ham.
Allan, T. & Sons, gas and water pipe manufacturers, Springbank Iron Works, Glasgow.
Allan, W. M. & Co., electro-platers, 184, Buchanan-street, Glasgow.
Allan, G. P., mechanical engineer, 184, St. George-street, London, E.
Allan, Jas., tube maker, Victoria tube works, Coatbridge, Glasgow.
Allan, Peter, electric bell fitter, 46 & 50, High-street, Dumbarton.
Allard & Gale, wood engravers, 4, Victoria-chambers, Temple-row, Birmingham.
Allcock Brothers, brass founders, 232, 233 & 234, King Edward's-road, Birmingham.
Allen, Edgar & Co., machine tool makers, Well Meadow Steel Works, Sheffield.
Allen, Harrison & Co., anti-friction metal merchants, Lower Cambridge-street Works, Manchester.
Allen, J. & W., chemical manufacturers, Wallsend, Newcastle.
ALLEN, W. H., & Co., mechanical engineers, York-street Works, York-road, Lambeth, London, S.E.
Allen, W. T., & Co., mechanical engineers, 2, Somerset-buildings, Lambeth-hill, London, E.C.
Allen, Benj., brass and copper founder, 32, Gloucester-street, Queen's-square, London, W.C.
Allen, Edward, draughtsman, 10, Leaton-road, Higher Tranmere, Birkenhead.
Allen, Edward A., designer, 41A, Constitution-hill, Birmingham.
Allen, G., electro-plate manufacturer and dealer, 39, Harford-street, Birmingham.
Allen, George, brass and copper founder, 163, High Holborn, London, W.C.
Allen, George, brass founder, 97½, Hockley-street, Birmingham.
Allen, George, ivory turner, Morrison's-court, Groat Market, Newcastle.
Allen, Henry, electro plated ware manufacturer, 147, Park-lane, Birmingham.
Allen, William, electric bell fitter 140 (back of), Lupin-street, Birmingham.
Allender, William & Thomas, brass founders, 71 & 72, Great Lister-street, Birmingham.
Allerton, C., & Son, earthenware manufacturers, Park Works, High-street, Longton, Stafford.
Alley & MacLellan, anti-friction, metal merchants, 33, Virginia-street, Glasgow.
Alley & MacLellan, mechanical engineers, 235, Upper Thames-street, London, E.C.
Allison Bros., draughtsmen, 41, Southampton-buildings, Holborn, London, W.C.
Allnutt, John Elliot, india rubber manufacturer and dealer, 75A, Little Britain, London, E.C.
Alloway, William, electric bell fitter, 16, Brown-street, Grosvenor-square, London, W.

Digitized by Google

Allport, C. J., mechanical engineer, 11, Queen Victoria-street, London, E.C.
Allport, J., draughtsman, 27, Ward-street, Masbro', Rotherham.
Allsup, W., & Son, gas and water pipe manufacturers, Caledonian Foundry, Strand-road, Preston.
Alma Boiler Works, boiler makers, 824, Gallowgate, Glasgow.
Alma Tube Works, iron tube makers, 145, Queen Victoria-street, London, E.C.
Almond Bros., electro-gilders and platers, 129, Stretford-road, Manchester.
Almond, Robert, coppersmith, 3, Bath-lane, Durham.
Alston Moor Mining Company, lead manufacturers, Alston-moor, Cumberland.
Altendorf & Wright, wire drawers, 20, Russell-street, St. Mary's-square, Birmingham.
Alum and Ammonia Co., Limited, manufacturing chemists, 201, West-street, s.s., Glasgow.
ALUMINIUM CROWN METAL COMPANY, metal merchants, 34, Leadenhall-street, London, E.C.
Amor & Son, brass and copper founders, 17, Osborne-street, Whitechapel, London, E.
Anchor Tube Company, iron tube makers, Gas-street, Birmingham.
Ancoats Vale Rubber Company, Limited, driving band and india rubber manufacturers, 13, Bow-lane, London, E.C.
Andemars, Louis, chronometer maker, 39, Great Russell-street, Bloomsbury, London, W.C.
Anders, George Lee, electrical inventor, 31, Queen Victoria-street, London, E.C.
Anderson, Abbott & Anderson, india rubber manufactrs. & dealers, 37, Queen Victoria-st., London, E.C.
Anderson Bros., coppersmiths, 93, Stockwell-street, Glasgow.
Anderson, David, & Son, felt makers, 10, London-street, London, E.C.
Anderson & Lyall, steam boiler makers, Whitefield-road, Govan, Glasgow.
Anderson & Munro, zinc manufacturers, 136, Bothwell-street, Glasgow.
Anderson, R., & Co., lead merchants, 72, Duke-street, Liverpool.
Anderson, R., & Co., copper merchants, Jane-street, Leith.
Anderson, S., & Son, electric bell fitters, 66, Swanswell-street, Coventry.
Anderson, F., electric lamp and lustre manufacturer, 51, West Howard-street, Glasgow.
Anderson, Hy., optician, Alma Grove, Copenhagen-street, London, N.
Anderson, Jas., glass manufacturer and merchant, 205, Shandon-place, Govan-road, Glasgow.
Anderson, Jas., zinc manufacturer, 69, Stockwell-street, Glasgow.
Anderson, Jas., coppersmith, 140, Stockwell-street, Glasgow.
Anderson, John, electric bell fitter, 154, Borthwell-street, Glasgow.
Anderson, John C., brass, copper and iron tube maker, 155, Fenchurch-street, London, E.C.
Anderson, Richard, electrical consulting engineer, Leadenhall-house, 101, Leadenhall-st., London, E.C.
Anderton, Sir James, telegraph sub-marine engineer, 66, Old Broad-street, London, E.C.
Anderston Bottle Works, glass manufacturers and merchants, 13, Princes-square, Glasgow.
Anderton & Lester, electric lamp and lustre manufacturers, 61, Spear-street, Manchester.
Anderton, C., electro-plate manufacturer and dealer, 43, Copper-street, Sheffield.
Anderson, G. H., manufacturing chemist, Howden Dyke, Howden.
Andrew & Co., machine tool makers, 135, Commercial-street, London, E.
Andrew, John Henry, & Co., steel manufacturers, Toledo Steel Works, Neepsend-lane & 72, Effingham-road, Sheffield.
Andrews & Co., electro-plate manufacturers and dealers, 71, Tottenham-court-road, London, W.
Andrews' Foundry Company, brass founders, 21, Cumberland-street, Birmingham.
Andrews, C., electric bellhanger, Claines, Worcester.
Andrews, John, brass caster, 32, Rupert-street, Birmingham.
Andrews, Joseph, electrician, 25, Warwick-road, Earl's-court-road, London, S.W.
Angell & Co., leather driving band makers, 36, Russell-street, Bermondsey, London, S.E.
ANGLO-AMERICAN (BRUSH) ELECTRIC LIGHT CORPORATION, LIMITED, 108, Belvedere-road, Lambeth, London, S.E.
Anglo-American Telegraph Company, Limited—general office, 26, Old Broad-street, London, E.C.; office for reception of messages, 23, Throgmorton-street, London, E.C.
ANGLO-AUSTRIAN BRUSH ELECTRICAL COMPANY, LIMITED, 4, Copthall-buildings, Throgmorton-street, London, E.C.
Anglo-Continental Telephone Company, Limited, Windsor-chambers, Great St. Helen's, London, E.C.
Anglo-Italian Mineral Oils and Bitumen Company, oil merchants, 57, Moorgate-street, London, E.C.
Anglo-Pacific Electric Light, Telephone and Power-Company (The), Limited, 31 Queen Victoria-street, London, E.C. (José D. Husbands, General Manager).
Anglo-Spanish Brush Electric Light and Power Company, Limited, 110, Cannon-street, London, E.C.
Angus, G., & Co., leather driving band makers, 187, Upper Thames-street, London, E.C.
Angus, G., & Co., copper merchants, Grainger-street, Newcastle-on-Tyne.
Animal Charcoal Company, Limited, 11, New Gravel-lane, Shadwell High-street, London, E.
Annfield Pottery, pottery manufacturers, 573, Gallowgate, Glasgow.
Ansell, W. T., telegraph submarine engineer, 66, Old Broad-street, London, E.C.
Anstey, Joseph, brass founder, 48, Barford-street, Birmingham.
Anthony, J., electric bell fitter, Moseley-street, Ripley, Derby.

Digitized by Google

Anyon, J., gas fitter, 158, Wolverhampton-street, Dudley.
Andrews, W. S., telegraph submarine engineer, 18, Old Broad-street, London, E.C.
Appleby Bros., steam engine boiler makers, 89, Cannon-street, London, E.C.
Appleby & Co., tube makers (cast iron), Renishaw Iron Works, near Chesterfield.
Appleby & Co., iron tank manufacturers, 30, Wallbrook, London, E.C.
Appleby & Stamps, manufacturers of all kinds of electric light fittings, &c., 29, Graham-st., Birmingham.
Appleton, D., & Co., electro platers, 63, Sackville-street, Manchester.
Appleton & Horsfield, electro-platers, Sackville-street, Manchester.
Appleton, Mrs., lead merchant, 146, Bilston-street, Wolverhampton.
Apps, A., electrical and mathematical instrument maker and optician, electric alarm bell, lamp, and motor manufacturer, electrical and telephonic engineer, 433, Strand, London, W.
Apothecaries' Hall, manufacturing and metallurgical chemists, Water-lane, Blackfriars, London, E.C.
Arbuckle, John, glass manufacturer and merchant, 376, New City-road, Glasgow.
Arbuckle, Thos., sealing wax manufacturer, 52, Oxford-street, Glasgow.
Archbutt, J. & W. E., electric alarms –burglars, fire, safes, ships, trains, &c., 8, Bridge-street, Westminster, S.W.
Archdale, James & Co., engineers' tool makers, Manchester Works, Ledsam-street, Birmingham.
Archer, John & Son, bolt and nut manufacturers, Darlaston, Birmingham.
Archer, G., electro-plater and gilder, 153, Great Hampton-row, Birmingham.
Archer, Reuben, optician, 17, Myddelton-street, London, E.C.
ARCULUS, ALFRED, glass manufacturer, 295, Broad-street, Birmingham; globes for electric lighting purposes in flint, opal, alabaster, &c.
Arden, John, brass and copper founder, 40, Murray-street, London, N.
Arding, Francis, mechanical engineer, 5, Jeffrey's-square, St. Mary-axe, London, E.C.
Ariston Oil Co., oil refiners, 15, Kirby-street, Hatton-garden, London, E.C.
Ambrecht, Nelson & Co., magnetic curative appliance manufacturers, 23, Duke-street, Grosvenor-square, London, W.
Armstrong & Co., brass and copper founders, 1 & 2, King-street, Poplar, London, E.
Armstrong, Joseph & Co., steel manufacturers, Pothouse-lane, Attercliffe-common, Sheffield.
Armstrong & Son, brass and copper founders, 55, West India Dock-road, London, E.
Armstrong, Stevens & Co., electric light apparatus manufacturers, 15, Whittal-street, Birmingham.
Armstrong, Sir W. G. & Co., mechanical engineers, Elswick Works, Newcastle, and 8, Great George-street, London, S.W.
Armstrong, John, brass founder, 34, St. James'-square, Wolverhampton.
Armstrong, William, electric bell fitter, Stockport-road, Altrincham.
Arney & Co., wire drawers, 23, Ironmonger-row, London, E.C.
Arnold & Arnold, drain-pipe manufacturers, Wilnecote Works, Wilnecote, Tamworth.
Arnold & Large, tube manufacturers, Derby-street, Wolverhampton.
Arnold, Alfred Henry, optician, 191A, Gray's-inn-road, W.C.
Arnold, George W., electro gilder and plater, 39, Northampton-road, Clerkenwell, London, E.C.
Arnold, James, brazier, 120½, Rupert-street, Birmingham.
Arnold, J., steam engine boiler maker, New Brampton, Chesterfield.
ARRIGHI, L., glass blower, 36, Brooke-street, Leather-lane, Hatton-garden, London, E.C.
Arroll, Arch. & Sons, glass manufacturers and merchants, 16, Dixon-street, Glasgow.
Arrowsmith, A., electro gilder and plater, 5, Sheffield-street, Lincoln's-inn-fields, London, W.C.
Artingstall, G. & Co., wire workers and weavers, Latchford, Warrington.
Arthur, John, consulting engineer, 5, City-road, Chester.
Asbestos Italian Mining and Manufacturing Co., asbestos manufacturers and mine owners, 31, Dutton-street, Manchester.
Asbestos Manufacturing Co., Limited, 19, Mount-street, Manchester.
Asbury, J., screw stock and die tap maker, 46, Vincent-parade, Balsall Heath-road, Birmingham.
Asbury, James Samuel, brass founder, Brettel-lane, Stourbridge.
ASH, J. & SONS, galvanizers and telegraph works, Rea-street, Louth, Birmingham.
Ash & Lacy, zinc merchants, 122, Cannon-street, London, E.C.
Ash & Lacy, copper merchants, 41, 42 and 43, Meriden-street, Birmingham.
Ash, Moses & Son, electrical instrument makers, 4, Bull-street, Birmingham.
Ash, Thomas & Co., zinc merchants, 37, Cannon-street, and Needless-alley, Birmingham.
Ashbury, P., & Sons, electro-plate manufacturers & dealers, 21, Bowling-green-street, Sheffield.
Ashby, Geo. Frederick, electric bell manufacturer, 165, King's-road, Chelsea, London, S.W.
Ashby, Morris, zinc merchant, 17, Laurence Pountney-lane, London, E.C.
ASHDOWN, T., electro-plater & gilder, 47, Berwick-street, Soho, London, W.
Ashforth, Joseph, & Co., bolt & nut manufacturers, Bruce Works, Mowbray-street, Sheffield.
Ashton, John C., lead merchant, 70, Essex-road, London, N.
Ashton, R. H., lead miner & smelter, Hope, Sheffield.
Ashton, T. A., leather driving band manufacturer, 36, 40 & 42, Norfolk-st., Sheffield.

Digitized by Google

Ashton & Green, Limited, galvanizers & felt makers, 11, Bury-street, St. Mary-axe, London, E.C.
Ashworth, Geo. L. Bros., earthenware manufacturers, Broad-street, Hanley, Stafford.
Ashworth, Thos., mining engineer, 25, Pratt-street, Fenton Culvert, Stoke-on-Trent.
Askham Brothers & Wilson, Limited, wire manufacturers, Yorkshire Steel Works, Napier-st., Sheffield.
Aspinall, J., wire drawer, South-lane Mills, Elland, Normanton.
Asquith, W., machine tool maker, Highroad Well Works, Halifax.
Astbury, T., & Son, lighthouse engineers, Smethwich Foundry, Rolfe-street, Birmingham.
Astle, W., manufacturing chemist, Etruria Vale, Hanley, Stafford.
Aston & Mander, mathematical instrument makers, 25, Old Compton-street, London, W.
Aston, Joseph, bolt & nut manufacturer, 2 Court, Ashted-row, & 25 Court, Windsor-st., Birmingham.
Aston, John C., zinc merchant, 70, Essex-road, London, N.
Aston, Samuel, electric bell fitter, 25, Potter's-lane, Birmingham.
Aston, Thos., brass founder, Cophall-street, Great Bridge, West Bromwich.
Atkey, A. J., & Co., mechanical engineers, 33, Cornhill, London, E.C.
Atkey, Pascall, & Son, galvanizers & galvanized iron wire manufacturers, 29, High-st., West Cowes.
Atkins Bros., electro-plate manufacturers & dealers, 11, Charterhouse-street, London, E.C.
Atkins Bros., chandelier makers, 171 & 172, Hockley-hill, Birmingham.
Atkins, F. H., & Co., iron tank manufacturers, 62, Fleet-street, London, E.C.
Atkins, William & Co., steel manufacturers, Reliance Steel Works, Attercliffe, Sheffield.
Atkins, M. H. T., electric bell fitter, 4, Victoria-street, High Fields, Coventry.
Atkinson & Co., mechanical engineers, 221, West Ferry-road, Millwall, London, E.
Atkinson, Geo., & Co., oil refiners, 66, Aldersgate-street, London, E.C.
Atkinson, Jas., mechanical engineer, 47, Marquis-road, Finsbury-park, London, N.
Atlas Engine Company, mechanical engineers, 4, Broad-street-buildings, Liverpool-st., London, E.C.
Atlas Iron Works Company, iron telegraph pole manufacturers, Litchurch, Derby.
Attfield, Professor John, analytical chemist, 17, Bloomsbury-square, London, W.C.
Aublet, Harry, & Co., tube brush manufacturers, 38, Spital-square, London, E.
Auld, Samuel, & Co., electrolier fitters, 240, Gallowgate, Glasgow.
Aumonier, H. S., mechanical engineer, 22, Cyrus-street., Clerkenwell, London, E.C.
Auster, Charles H., brass founder, 59, Skinner-lane, Birmingham. Manufacturer of general and cabinet brass foundry.
Austin, Wm. & Sons, manufacturing chemists, 395, Nechell's Park-road, Birmingham.
Austin, Josiah, galvaniser, William-street, Penn-street, Deritend, Birmingham.
Austin, S., electric bell fitter, Swadlincote, Burton-on-Trent.
Australasian Electric Light, Power & Storage Company, Limited, 4, Copthall-buildings, London, E.C.
Aveling & Porter, steam engine makers, 72, Cannon-street, London, E.C.
Avonside Engine Company, mechanical engineers, 3 & 4, Great Winchester-street, London, E.C.
Avonside Engine Company, Limited, steam engine makers, Avon-street, Bristol.
Aylmer, John, wire worker & weaver, 53, Whitechapel-road, London, E.
Aylmer, Robert, model maker, 23, Cornwall-road, Lambeth, London, S.E.
Aynsley, H. & C., earthenware manufacturers, Chancery-lane, Longton, Stafford.
Ayrton, F.R.S., & Perry, Professors, electrical engineers, 71, Queen-st., Queen Victoria-st., London, E.C.
Azopardo & Co., mechanical engineers, Lower Sydenham, S.E.

B.

Bachhoffner, Charles, chemical glass and apparatus manufacturer, St. Andrew's-buildings, London, E.C.
Back & Manson, metal merchant, 36, New Broad-street, London, E.C.
Back, Usher, cotton waste merchant, 77, Blackfriars-road, London, S.E.
Backstraw, T., draughtsman, 45, Walkley-street, Walkley, Sheffield.
Bacon & Wayman, wire workers and weavers, 16, Hill-street, Finsbury-square, London, E.C.
Badger, John, & Co., iron telegraph pole manufacturers, Stephenson-st., Stephenson-place, Birmingham.
Badger, W., & Sons, mechanical engineers, 11, Queen Victoria-street, London, E.C.
Baden Vegetable Parchment Manufacturing Co., 9, Bond-court, Walbrook, London, E.C.
Baggaley, J., earthenware manufacturers, Hill Works, Burslem, Stafford.
Bagley, John, & Co., electro-plated ware manufacturers, 6½, Regent-parade, Birmingham.
Bagnall, J., wire drawer, 7, Barford-street South, Birmingham.
Bagnall, W. G., mechanical engineer, 81, Gracechurch-street, London, E.C.
Bagnall, W. G., pulley maker, Castle engine Works, Stafford.
Bagshaw, George, & Son, crucible manufacturers, Headford Works, 42, Egerton-lane, and 50, Headford-street, Sheffield.
Bagshaw, J., & Sons, clutch manufacturers, Batley, Yorkshire. Addyman's American friction clutch.
Bagshaw, W., lead smelter, Grindlow, Eyam.
Bailey & Co., telegraph insulator manufacturers, Fulham Pottery, London, S.W.

Digitized by Google

Bailey, J., & Sons, electric bell fitters, 28 and 29, Market-street, Tamworth, Stafford.
Bailey, Pegg & Co., gas pipe makers, 81, Bankside, London, S.E.
Bailey, W. H., & Co., turbine and water wheel makers, Albion Works, Essex-street, Salford, Manchester.
Bailey, H. & F., electric bell fitters, Church-gate, East Retford.
Bailey, S. & J., mining engineers, Perry Barr, Stafford.
Bailey, Geo., electrical engineer, 55, Gray-street, Blackfriars, London, S.E.
Bailey, Henry, electro plater and gilder, 234, Great Colmore-street, Birmingham.
Bailey, Peter, drain pipe manufacturer, Pringate Brick and Pipe Works, Stockport, Etchells, Manchester.
Bailey, R., optician, 14, Bennett's-hill, Birmingham.
Bailey, R., mathematical instrument maker, 14, Bennett's-hill, and 102, Broad-street, Birmingham.
Bailey, R., coppersmith, 74, James-street, Jarron-on-Tyne.
Bailey, T., electric bell fitter, 7, Princess-street, Wolverhampton.
Bailey, Wm. Geo., electric bell fitter, 11, Bramley-road, Notting-hill, London, W.
Bailey, Wm. Henry, brass and copper tube maker, 25, Bury-street, Birmingham.
Baily, Wm., & Sons, electric bell fitters, 71, Gracechurch-street, London, E.C.
Bain, W. & A., zinc manufacturers, 61, William-street, Anderston.
Bainbridge & Crimson, electric bell manufacturers, Oakwell-gate, Gateshead.
Bainbridge, Wm., coppersmith, Middlegate-street, Hartlepool.
Baines, Wm. Newbould, brass and copper founder, 6, Fenchurch-buildings, London, E.C.
Bainsley, R., electric bell fitters, Old-hill, Dudley.
Baird, Arch., & Son, gutta percha merchants, 67, Robertson-street, Glasgow.
Baird, John, glass manufacturer and merchant, 71, Bishop's-street, Port Dundas, Glasgow.
Baird, Thos., optician, 249, Argyle-street, Glasgow.
Baker Bros., brass founders, 35 (back of), Baker-street, Small-heath, Birmingham.
Baker & Co., earthenware manufacturers, Fenton Culvert, Stoke-on-Trent.
Baker, Christopher, & Sons, brass founders, King Edward's-place, Broad-street, Birmingham.
Baker, George, & Co., galvanizers, Chester-street, Dartmouth-street, Birmingham.
Baker, R., & Co., mica merchants, 9, Mincing-lane, London, E.C.
Baker & Parker, wood engravers 3, Richard-street, Birmingham.
Baker, Charles, wire worker and weaver, 5, Skinner-street, Birmingham.
Baker, Chas., mathematical instrument maker, 244, High Holborn, London, W.C.
Baker, Charles, electro gilder and plater, 14, Wynyatt-street, Goswell-road, London, E.C.
Baker, D., electrician, 90, St. John-street-road, London, E.C.
BAKER, GEORGE, medical battery manufacturer, galvanist and electrician, 28, Broad-street, Birmingham. Inventor of the electro-galvanic Belt of Life.
Baker, Henry L., electric bell fitter, 14, Little Bell-alley, Moorgate-street, London, E.C.
Baker, Jas., coppersmith, 1, Greenfield-cottages, Union-street, Egremont, Birkenhead.
Baker, John, oil merchant, 28, High-street, Deritend, Birmingham.
Baker, R., iron founder, 16 Lionel-street, Birmingham.
Baker, Thomas, electro plater and gilder, 58½, Great Hampton-street, Birmingham.
Baker, Thomas, wire worker and weaver, 22, St. John-street, West Smithfield, London, E.C.
Baldwin, Son & Co., hinge makers, 4, Corbet-court, London, E.C.
Bale, Powis & Co., mechanical engineers, 20, Budge-row, London, E.C.
Balfour, Henry, & Co., mechanical engineers, 39, Finsbury-circus, London, E.C.
Balfour, J. L., manufacturing chemist, Brownhills, Walsall.
Bamber, Henry K., analytical chemist, 5, Westminster-chambers, London, S.W.
Bamford, J., earthenware manufacturer, Nelson-place, Hanley, Stafford.
Bampfylde (Copper) Mining Co., Limited, Sagar's-buildings, Brunswick-street, Liverpool.
Banbury, J., electric bell fitter, 24, Queen-street, Rutland-street, Leicester.
Bancroft Bros., tool makers, stampers and piercers, 170, Hockley-hill, Birmingham.
Band, James & Sons, parchment makers, 21, York-street, Walworth, London, S.E.
Banham, John, & Sons, steel manufacturers, 53, Carver-street, Sheffield.
Banks, Joseph, & Co., steel manufacturers and merchants, 30, Hope-street, Glasgow.
Banks & Stewart, copper merchants, 30, Hope-street, Glasgow.
Banks & Thorley, earthenware manufacturers, Boston Works, High-street, Hanley, Stafford.
Banks, James, charcoal manufacturer, Old Effingham Works, Neville-street, Rotherham.
Banks, J., electric bell fitter, 16, Wednesfield-road, Willenhall.
Banks, N., earthenware manufacturer, Hill Top Potteries, Church Gresley, Burton-on-Trent.
Banner, E., iron founder, Star Iron Works, Wolverhampton.
BANNISTER, RICHARD, analytical chemist, The Laboratory, Somerset-house, London, W.C.
Barangah Oil Refinery Co., 4, Queen Victoria-street, London, E.C.
Barber, J. & W., wire drawers, Southowram, Halifax.
Barbican India Rubber Co., 1, Barbican, London, E.C.
Barbour, Oliver Ross, manufacturing chemist, 3, Canning-street, Calton, Glasgow.

Digitized by Google

Barclay, Son, & Co., electrolier lamp and lustre manufacturers, 11, Wigmore-street, W., and 138, Regent-street, London, W.
Barclay, Arthur, mechanical engineer, 12, York-street, Covent-garden, London, W.C.
Barge & Godwin, oil merchants, 215, Weston-street, London, S.E.
Barker Bros., electro-plate and nickel-silver spoon and fork manufacturers, 42, Paradise-st., Birmingham.
Barker Bros., earthenware manufacturers, Gold-street, Longton, Stafford.
Barker Bros., nickel silver manufacturers, 42 and 43, Paradise-street, Birmingham.
Barker, Benj. L., & Co., steam engine makers, Liberty Iron Works, Stalybridge.
Barker & Son, mathematical instrument makers, 12, Clerkenwell-road, London, E.C.
Barker, Edwyn John, jun., lead merchant, 162, Sloane-street, London, S.W.
Barker, George (Fellow of Institute of Patent Agents), patent and design registration agent, 77, Colmore-row, Birmingham. International patent and designs office.
Barker, G., mining engineer, Mount Pleasant-house, Bedworth, Nuneaton.
Barker, S., wire drawer, 16, Oozells-street North, Birmingham.
Barker, T. B., gas engine maker, Scholefield-street, Bloomsbury, Birmingham. Universal gas engine.
Barlow, C., earthenware manufacturer, Lower Mollart-street, Hanley, Stafford.
Barlow, J. & W., steam engine boiler makers, Crawford-street, Rochdale.
Barlow, T. W., & Son, earthenware manufacturers, Commerce-street, Longton, Stafford.
Barlow, W. H., electrician, 2, Old Palace-yard, London, S.W.
Barnard, Bishop & Barnards, mechanical engineers, 91 to 95, Queen Victoria-street, London, E.C.
Barnard, J., & Co., boiler non-conducting composition makers, 170, High-street, Stratford, London, E.
Barnard, Henry Augustus, zinc merchant, 1, Cheapside, Birmingham.
Barnard, James, wood engraver, 1, Viaduct-chambers, Holborn, London, E.C.
Barnes & Co., electrolier manufacturers, 311, Broad-street, Birmingham. Side brackets and standards in glass and brass; also globes for electric lighting.
Barnes & Co., oil merchants, 137, Upper Thames-street, London, E.C.
Barnes, Henry, oil merchant, 216, Old Kent-road, London, S.E.
Barnes, J., brass founder, Alfreton-street, Nottingham.
Barnes, James, melter, 41, Essex-road, London, N.
Barnes, John Clarke, brass founder, 4, Court, Dymoke-street, Birmingham.
Barnes, Wm., jun., brass founder, 19, Great Hampton-st., Birmingham.
Barnett, David, screw maker, Broadway-chambers, Westminster, London, S.W.
Barnett, E., drain-pipe manufacturer, Springfield Brick and Tile Works, Walsall.
Barns, Wm., & Son, zinc merchants, Christopher Works, Chalton-street, Somers Town, London, N.W.
Barnsley, R., tube manufacturer, Old-hill, Dudley.
Baron, T., & Son, coppersmiths, 19 and 21, Mill-lane, Macclesfield.
Barr, Wm., & Co., manufacturing chemists, 11, Miller-street, Glasgow.
BARR, ROBERT (agent for Oldfield and Watson), patent link leather belting makers and general engineers, East India Dock, London, E.
BARRACLOUGH, T., & CO., LIMITED, core serving machine manufacturers; offices, 8, King-street; works, Whitley-street, Rochdale-road, Manchester.
Barralet, Henry, drain-pipe (stoneware) manufacturer, 74, Paul-street, Finsbury, London, E.C.
Barraud & Lunds', chronometer makers, 41, Cornhill, London, E.C.
Barrett & Leggott, electric bell manufacturers, Market-street, Bradford.
Barrett, R., & Son, brass, copper and iron founders, Beech-street, London, E.C.
Barrie, John, zinc manufacturer, 167, Holm-street, Glasgow.
Barron, Henry S., mechanical engineers, 4, 5 and 6, Great St. Helen's, London, E.C.
Barron, S., brass founder, Yat Bank Foundry, Oldbury.
Barrow, F. A., manufacturing chemist, 143, Wellington-street, Glasgow.
Barrowfield Pottery, pottery manufacturers, Avenue-street, Glasgow.
Barrows & Stewart, electrical engineers, 118, Queen Victoria-street, London, E. C.,
Barry, William & Co., drain-pipe manufacturers, Woodville, Burton-on-Trent.
Bartle, J., & Co., brass and copper founders, 236, Lancaster-road, Notting-hill, London, W.
Barton, George & Co., composition makers, &c., 12, Douglas-street, Deptford, London, S.E.
Barton, Wm., & Co., wire rope manufacturers, 153, South Scotland-street, Glasgow.
Barton, B., brazier, 43, Cross Cheaping, Coventry.
Barton, J., optician, 68, Thirlwell-road, Heeley, Sheffield.
Bartrum & Powell, mechanical engineers, 35, Queen Victoria-street, London, E.C.
Bartrum, Pretyman & Mumford, rivet manufacturers, 168, Upper Thames-street, London, E.C.
BARWELL, JOHN, & SONS, copper merchants, 28, Pickford-street, Birmingham.
BARWELL, SON & FISHER, electric light fitting manufacturers and chandelier makers, Waltham-buildings, Holborn-circus, London, W.C.; Worcester Works, Clement-street, Birmingham.
BARWELL, WILLIAM, bolt and nut manufacturer, Hockley Bolt and Nut Works, Birmingham; insulator, arm, shackle and all kinds of bolts, nuts, screws, &c.

Digitized by Google

Barwell, William, screw maker, 34, Nicholas-lane, London, E.C.
Barwell, William, rivet manufacturer, Brookfield-street, Birmingham.
Barwise, John, chronometer maker, 40, St. James'-street, London, S.W.
Basford Chemical Co., manufacturing chemists, Basford.
Basse & Selve, telegraph wire manufacturers, Jeffrey's-square, St. Mary-axe, London, E.C.
Bassett, Bagnall & Co., metal merchants and dealers, 3, James-street, Birmingham.
Bassett, J., telegraph wire manufacturer, 256, Chapel-street, Salford, Manchester.
Bastin, F. P., & Co., telegraph cable making machine manufacturers, Yiewsley-wharf, West Drayton.
Bastin, Charles, maker of all kinds of stoneware for electrical purposes, 154, Vauxhall-walk, Lambeth, London, S.E.
Batchelor & Sons, electric bell fitters, 45, Bell-street, Edgware-road, London, N.W.
Batchelor, David, charcoal maker and dealer, 37 & 38, Mark-lane, London, E.C.
Bateman, A. H., & Co., emery wheel and machinery makers, 13, Broad-street-corner, Birmingham.
Bateman, John, optician, 104, Strand, London, W.C.
Bateman, J., wire drawer, Parkhouse Mill, Low Moor, North Bierley, Bradford.
Bates & Bennett, earthenware manufacturers, Sneyd-street, Cobridge, Burslem, Stafford.
Bates, Gildea & Walker, earthenware manufacturers, Dale Hall, Burslem, Stafford.
Bates, T., & Co., mechanical engineers, 37, Walbrook, London, E.C.
Bates, T., & Co., turbine and water-wheel makers, Bank Foundry, Sowerby Bridge.
Bates, Joseph, electro gilder and plater, Temple-street, Wolverhampton.
Bates, J., galvanizer and galvanized iron wire manufacturer, West Bute Docks, Cardiff.
Batigan, B., grease manufacturer, 3, Staniforth-place, Hessle-road; Hull.
Batt, G., electro gilder and plater, 77, Rahere-street, Goswell-road, London, E.C.
Battam & Co., bronzists, 160, New Bond-street, London, W.
Baudet, Cloris, electrical instrument maker, 90, Rue Saint Victor, Paris.
Baughan, H. W., electrical bell manufacturer, Charlbury.
Bawden, Charles William, draughtsman, 22, Victoria-road, Higher Tranmere, Birkenhead.
Baxter, Henry, copper smelter and refiner, 20, Easy-row, Birmingham.
Baxter, J., wire worker and weaver, 22, Churchgate, Leicester.
Bayfield, W. H., electro-plater and gilder, 51, Great Sutton-street, London, E.C.
Bayley, Thomas, & Co., Limited, parchment makers and dealers, 8, Snow-hill, London, E.C.
Bayliss, Jones & Bayliss, bolt and nut manufacturers, 3, Crooked-lane, London, E.C.
Bayliss, W., & Co., electro gilders and platers, Wednesbury-road, Walsall.
Bayliss, William, brass and copper tube maker, Sheepcote-street, Birmingham.
Beach, John, & Sons, parchment makers, 41, 45, Willow-walk, London, S.E.
Beach, W. T., & Co., galvanizers, Albert-works, Stewart-street, Wolverhampton.
Beale, John, mechanical engineer, Conduit-house, Woolwich-road, East Greenwich, London, S.E.
Beard, Dent & Hellyer, lead merchants, 21, Newcastle-street, Strand, London, W.C.
Beard, John, clock wheel maker, 28, Corporation-row, Clerkenwell, London, E.C.
Beart's Patent Brick Co., stoneware manfrs., 1 Wharf, Gt. Northern Goods Station, York-rd., London, N.
Beasley, Ilsyd T., M.E., consulting engineer, 92, Netherwood-road, West Kensington-park, London, W.
Beatson & Co., glass manufacturers, Rotherham Glass Works, George-street, Masborough, Rotherham.
Beaumont, Chas., & Co., mechanical engineers, 11 & 12, Clement's-lane, London, E.C.
Beaumont & Dougill, electric bell manufacturers, 34, Great George-street, Leeds.
Beaumont, W. B., lead manufacturers, Allen Smelt Mill, Allendale.
Beck & Candlish, engineers' tool makers, Providence-works, Brown-street, Sheffield.
Beck & Co., Limited, hydraulic engineers, 130, Great Suffolk-street, Southwark, London, S.E.
Beck, R. & J., opticians, 68, Cornhill, London, E.C.
Beck, George, mechanical engineer, 37, Devonshire-street, Queen-square, London, W.C.
BECK, W. H., patent and design registration agent, 139, Cannon-street, London, E.C.
Becker, F.D., & Co., chemical glass and apparatus manufacturers, balance makers, electrical instrument makers, 34, Maiden-lane, Covent-garden, London, W.C.
Becker, Ernest, parchment maker, 30, Little Trinity-lane, London, E.C.
Beckett, Alfred, & Sons, steel manufacturers, Brooklyn-works, Green-lane, Sheffield.
Beckett Brothers, braziers, 42 to 45, Harford-street, Birmingham.
Beckett, C., electro gilder and plater, St. Mary's-row, Walsall.
Beckett, H. H., mining engineer, 59, Queen-street, Wolverhampton.
Beckh, G. A., brass wire manufacturer, 6, Love-lane, Aldermanbury, London, E.C.
Beckles, S. H., & Co., manufacturing and metallurgical chemists, 6, Lime-street, London, E.C.
Beckmann & Co., emery wheel and machinery makers, 4, South-place, Finsbury, London, E.C.
Becks, Arthur Thomas, brazier, Chester-street, Dartmouth-street, Birmingham.
Beckwith, E., & Co., steam engine makers, Machinery Stores, Sunderland.
Bede Metal and Chemical Company, Limited, copper merchants, Hebburn, Durham.
Bedford, Steer, End & Co., wire drawers, 78, Long-lane, London, S.E.

Digitized by Google

Bedford, Christopher, analytical chemist, 6, St. Swithin's-lane, London, E.C.
Bednall & Heath, earthenware manufacturers, Tinker's-clough, Hanley, Stafford.
Bee & Co., oil merchants, Warton-road, Stratford, London, E.
Beech & Morgan, earthenware manufacturers, Waterloo-works, Hanley, Stafford.
Beech, George, telegraph instrument case maker, by steam power, 14, Norfolk-road, Dalston-lane, Dalston, London, N.
Beech, J., earthenware manufacturer, Swan Bank, Tunstall, Stafford.
Beecham, Henry, electric bell fitter, 246, Hoxton-street, London, N.
Beecroft, W., brazier, 43, Church-st., Attercliffe, Sheffield.
Beeley, Joseph, brass founder, 143, Rockingham-lane, Sheffield.
Beesley, D., & Co., ironfounders, 89, Dartmouth-street, Birmingham.
Beesley, Arthur, wood engraver, York-passage, High-street, Birmingham.
Belcher, J., electric bellfitter, Broadway, Worcester.
Beldam Packing and Rubber Company, steam packing manufacturers, 77, Gracechurch-street, London, E.C.
BELGIAN GLASS COMPANY, (John Berry, & Co.), glass globe makers, 19, Basinghall-street, London, E.C. Globes in opal, flashed opal, alabastine, ground, &c.
Belgian Glass Company, (Chas. De Grelle & Co.), glass globe makers, 19, Basinghall-st., London, E.C.
Belham, J., & Sons, mechanical engineers, 10, Rupert-street, London, W.
Belier, Charles, rivet maker, 16, Lower Whitecross-street, London, E.C.
Bell Brothers, manufacturing chemists, 630, Keppochhill-road, Glasgow.
Bell, J. & M. P., & Co., pottery manufacturers, Stafford-street, Glasgow.
Bell, T., & Co., nitric and nitrous acid manufrs., Vitriol Works, near Abbey Mills, Stratford, London, E
Bell, A., electrical instrument maker, 175, Wardour-street, London, W.
Bell, C., steel manufacturer and merchant, 29, Waterloo-street, Glasgow.
Bell, George Angelo, consulting engineer, 10, Newgate-street, Chester.
Bell, H., india rubber manufacturer and dealer, 154, Guilford-street, York-road, London, S.E.
Bell, Henry, mathematical instrument maker, 70½, Great Clyde-street, Glasgow.
Bell, Henry Stowe, F.C.S., analytical chemist, 46, High-street, Sheffield.
Bell, J., asbestos manufacturer, 11, St. Vincent-place, Glasgow.
Bell, John, asbestos manufacturer and mine owner, 118, Southwark-street, London, S.E.
Bell, Richard H., copper merchant, 50, King-street, South Shields.
BELL, ROBERT A., M.E., consulting engineer, 92, Netherwood-rd., West Kensington-pk., London, W.
Bellamy & Bach, brass founders, 35, Livery-street, Birmingham.
Bellamy, John, steam engine boiler maker, Byng-street, Millwall, London, E.
Bellamy, Thomas, wire worker and weaver, 211, Aston-road, Birmingham.
Bellchamber, George, glass blower, Belle Isle, York-road, London, N.
Belleroche, Edward, zinc merchant, 10, London-street, London, E.C.
Belliss, G. E., & Co., steam engine boiler manufacturers, Ledsam-street Works, Ledsam-st., Birmingham.
Belstone Copper Mining Company, Limited, Belstone, Okehampton, Devon.
Belton, Samuel, mechanical engineer, 142, Drummond-street, London, N.W.
Benda Brothers, india rubber manufacturers, 5 & 6, Winchester-court, Monkwell-street, London, E.C.
Bendon, George, & Co., opticians, 36 & 37, Ely-place, London, E.C.
Benetfink & Co., electro gilders and platers, 107, Cheapside, London, E.C.
Benham & Froud, platinum retort and boiler manufacturers, 40 & 42, Chandos-st., Strand, London, W.C.
Benham, John, & Co., india rubber manufacturers, 236, Oxford-street, London, W.
Benjamin, Philip, electrolier lamp and lustre manufacturer, 25A, Hatton-garden, London, E.C.
Bennett & Bailey, brass founders, Mill-street, Mossley, Manchester.
Bennett, George & Co., iron merchants, Sheaf Furnaces, Station-road, Sheaf-street, Sheffield.
Bennett, George, & Sons, metal merchants, 10 & 11, Mincing-lane, London, E.C.
Bennett, Holmes & Kay, drain pipe manufacturers, California Brick Works, Stockbrook-street, Derby.
Bennett & Leese, drain pipe manufacturers, 49, Old Ulloxeter-road, Derby.
Bennett, Alexander, optician, 11½, Union-court; Old Broad-street, London, E.C.
Bennett, Frederick, brass and copper founders, 150, St. John-street, Clerkenwell, London, E.C.
Bennett, J., electric bellfitter, Orchard-street, Kidderminster.
Bennett, J., earthenware manufacturer, Wharf-lane, Hanley, Stafford.
Bennett, John J., brass and copper founder, 167 & 169, Kingsland-road, London, E.
Bennett, Sir John, chronometer maker, 64, Cheapside, London, E.C.
Bennett, W., spelter manufacturer, 60, Gracechurch-street, London, E.C.
Bennett, W., electric bell fitter, 110, High-street, Burton-on-Trent.
Bennett, W., wire drawer, 35, Horsefair, Kidderminster.
Bennie, David, & Son, bolt and screw makers, 68, Mitchell-street, Glasgow.
Bennie, James, & Co., boiler makers, Kinning-street, Glasgow.
Benson, Funston, india rubber manufacturer, 59, Upper-street, Islington, London, N.
Benson, James, india rubber manufacturer, 3 & 4, Tottenham-court-road, London, W.

Digitized by Google

Benson, J. D., electro gilder and plater, 64, Vyse-street, Birmingham.
Benson, J. W., chronometer maker, 62, Ludgate-hill, London, E.C.
Benson, William H., electro plater and gilder, 13, Weaman-street, Birmingham.
Bent, J., & Son, lamp manufacturers (street), 283, Bell Barn-road, Birmingham.
Bentall Brothers, tool makers, Maldon, Essex.
Benton Brothers, brass founders, Rodley-lane, Sheffield.
Benton & Stone, tube makers (brass and copper), 4 & 5, St. Paul's-square, Birmingham.
Benton, Mrs. Harriet, electro plater and gilder, 54, Barr-street, Birmingham.
Benwell, George, brass founder, 5, Carpenters-road, Lozells, Birmingham.
Bevington, J., earthenware manufacturer, Broad-street, and New-street, Hanley, Stafford.
Berger, J. U., & Sohn, wire manufacturers, 8, Coleman-street, London, E.C.
Berger Lewis, & Sons, Limited, lead manufrs., Mills, Leadmill-road; office, 69, Shoreham-st., Sheffield.
Bergius, W. C., & Co., telegraph contractors, 77, Queen-street, Glasgow.
Berk, Fred. William, & Co., merchants (chemical), 1, Fenchurch-avenue, London, E.C.
Berly, J. A., C.E., A.S.T.E. &c., electrical engineer; agent for Nothomb's patent incandescent lamps 10 to 300 candle power; Gramme patent dynamo magneto machine; J. G. T. Wood's patent accumulator and Hajnis (of Prague) patent arc lamps and Mondo's patent arc lamp, 16, New Bridge-street, London, E.C.
BERNAYS, J., steam engine maker, patent twin-cylinder engines, for driving electric machines, very steady and compact. Prize Medal, Paris Exhibition, 96, Newgate-street, London, E.C.
Berry, Francis, & Sons, engineers tool makers, Calderdale Iron Works, Sowerby-bridge, Yorkshire.
Berry, John, & Co., glass shade makers, 1, New Broad-street, London, E.C.
Berry, A., wood engraver, 53, Paternoster-row, London, E.C.
Berry, F. H., electrical instrument maker, 18, Percival-street, Clerkenwell, London, E.C.
Berry, Z. D., & Sons, electrolier, lamp, lustre, &c., manufrs, 16, Regency-st., Westminster, London, S.W.
Berton, Henry, glass shade stand maker, 56, Central-street, St. Luke's, London, E.C.
Bertram & Macnay, oil merchants, Cow-lane-bridge, Brook-street, Chester.
Best & Lloyd, chandelier makers, Cambray Works, Handsworth, Birmingham.
Best, James, drain pipe manufacturer, Hilltop, Rochford, Tenbnry.
Best, John Thomas, mechanical engineer, 2, Ham-yard, Great Windmill-street, London, W.
Best, S. J., mechanical engineer, 25, Hickman's Folly, London, S.E.
Bessemer, Henry, & Co., steel manufacturers, Sheffield.
Besson, F., & Co., electrolier, lamp, lustre, &c., manufacturers, 198, Euston-road, London, N.W.
Bessler, Wachter, & Co., metal merchants, 123, Bishopsgate-street Within, London, E.C.
Bettel, W., analytical chemist, Mechanics Institute, Durham-street, Middlesbro'
Bettelley, J., earthenware manufacturer, Union-street, Hanley, Stafford.
Betteridge, T., earthenware manufacturer, Woodville, Burton-on-Trent.
Bettridge, J., electro plate manufacturer and dealer, 97, Cheapside, London, E.C.
Betson, R., electric bell fitter, Grove-street, East Retford.
Betts & Co., tinfoil manufacturers, Wharf-road, City-road, London, N.
Betts & Sons, refiners, 64, Charlotte-street, Birmingham.
Betts, G., electric bell fitter, Mansfield Woodhouse, Mansfield.
Betts, William, file manufacturer, 7½, Monmouth-lane. Sheffield.
Bibbey, J., telegraph instrument manufacturer, 12, Williams-place, Sumner-street, London, S.E.
Bibby, Jno., Sons & Co., copper merchants, 83, Moseley-street, Manchester.
Bickerton, J., telegraph engineer, 21, Bridge-street, Deansgate, Manchester.
Brickley & Son, electric bell-fitters, 84, Liverpool-road, Newcastle.
Bickley, Chas. Henry, brass founder, 1, King Alfred's-place, Birmingham.
Biddell, Adolphus, brass caster, 70, Cheapside, Birmingham.
Biddlecombe, J., mechanical engineer, 12, Craven-street, City-road, London, N.
Biggs, F. J., electro plate manufacturer and dealer, 19, Gracechurch-street, London, E.C.
Biggs, John, engineer and gas-lamp manufacturer, 33, 34, & 102, Borough-road, London, S.E.
Billingsley, T., tube manufacturer, Walsall-road, Wednesbury.
Billington & Newton, phospor bronze manufacturers, Longport, Staffordshire.
Bilsland, John, screw maker, 37, Elliott-street, Glasgow.
Bilson, Miss, coppersmith, Rose and Crown-yard, Corn Market, Derby.
Bindoff, Levi, Hodges & Co., telegraph wire coverers, Royal Victor Works, Old Ford-rd., Bow, London, E.
Binks Bros, Lightning conductor manufacturers, Stratford-street, Millwall, London, E.
Binks, Siegel & Co., electric bell manufacturers, 12, Coleman-street, London, E.C.
Binney & Son (sole agents for Scotland), vulcanised fibre manufacturers, Catherine-street, City-road, London, E.C.; West Howard-street, Glasgow; Broad-street, Birmingham; and Wellington-street, Leeds.
Binney, Chas. Richard, steam packing maker, 5 & 7, Hackney-road, London, E.
Binney, Joseph, draughtsman, 40, Carlisle-street, Rotherham.

Digitized by Google

Binnie, James, drain pipe manufacturer, Gartcosh, and 69, Bath-street, Glasgow.
Binns, Alfred, & Co., wire manufacturers, 4, Redcross-street, London, E.C.
Binns, J. & A., wire manufacturers, West Mount Wire Mills, Halifax.
BINSWANGER, G., & CO., electric bell manufacturers, 33, Aldermanbury, London, E.C.
Binyon, Alf., boiler non-conducting composition maker, 2, Parsonage, Manchester.
Birchall, Peter, chronometer maker, 12A, Stonefield-street, Islington, N.
Bird, Fredk., & Co., india rubber manufacturers, 11, Great Castle-street, Regent-street, W.
Bird, Tremlett & Co., electrolier & chandelier manufacturers, Ingleby-street Works, Birmingham.
BIRKBECK BANK (F. Ravenscroft, secretary), banking institution, Southampton-bldgs., London, W.C.
Birkenhead Barytes Co., Limited, barytes manufacturers, 89, Cathcart-street, Birkenhead.
Birkenhead Galvanised Iron Co., galvanisers, 19, Gracechurch-street, E.C.
Birks Bros. & Seddon, earthenware manufacturers, Waterloo-road, Cobridge, Burslem, Stafford.
B'ham Battery & Metal Co., brass & copper wire manufs., 21, Gresham-house Old Broad-st., London, E.C.
Birmingham Electro Plate Co. (The), electro-plated ware manufacturers, 73, Lionel-street, Birmingham.
Birmingham India Rubber Co., driving band manufacturers, New-street & Charles Henry-street, Birmingham.
Birmingham Night Refuge & Homes for Destitute & Working Boys (A. V. Fordyce, F.S.S., hon. sec,), wire worker & weaver, 181, Alcester-street, Birmingham.
Birmingham Patent Iron & Brass Tube Co., tube makers, 77, Cannon-street, London, E.C.
Birmingham Patent Safety Steam Boiler Company, steam engine boiler manufacturers, 28, Heneage-street, Birmingham.
Birmingham Small Arms & Metal Co., Limited (Thos. Richard Bayliss, man.), rolling mills and rolled metal manufacturers, Adderley Park Rolling Mills; secretary's office, Small Heath, Birmingham.
BIRMINGHAM & WARWICKSHIRE (BRUSH) ELECTRIC LIGHT & POWER COMPANY, LIMITED, electric contractors & engineers, 110, Cannon-street, London, E.C.
Bischoff, Gustav, analytical chemist, 4, Hart-street, Bloomsbury, W.C.
Bishop, S. & C. & Co., glass globe makers, St. Helen's, Lancashire.
Bishop, W., lightning conductor manufacturer, 7, Thomas-street, Vaughan-street, Birmingham.
Bishop, Wm, mechanical engineer, 60, Pratt-street, Camden-town, London, N.W.
Bishopp, James, chronometer maker, 20, Bunhill-row, London, E.C.
Biston, T., galvaniser & galvanised iron wire manufacturer, Monmore-green, Wolverhampton.
Bissell, E. H., electric bell fitter, 37, Park-street, Leamington.
Black, Hawthorn & Co., steam engine makers, Gateshead.
Black, J., & Co., coppersmiths, 58, St. James'-street, Paisley-road, Glasgow.
Black, John & Co., wire rope manufacturers, 204, Elliott-street, Glasgow.
Black, Neil, glass manufacturer and merchant, 12, Morrison-street, S.S., Glasgow.
Black, Thomas, mathematical instrument maker, 12, Nethertorpe-place, Sheffield.
Black, Wm. Forsyth, mechanical engineer, 23, Bush-lane, Cannon-street, London, E.C.
Blackburn, E., electric bell fitter, 99, North-street, Edgware-road, London, N.W.
Blackburn, J., lightning conductor manufacturer, (Mr. Henderson, agent), 66, Frampton-park-road Hackney, London, E.
Blackburn, J., lightning conductor manufacturer, 39, Arkwright-street, Nottingham.
Blackett, Wm., mechanical engineer, Hop Exchange, Southwark-street, London, S.E.
BLACKHAM & COMPANY, Trades' Protection Offices, for recovery of debts, enquiries and issuing weekly and monthly gazettes, 29 and 30, Exchange-buildings, Stephenson-place, Birmingham.
Blackham, H., optician, 64, Queen-street, Wolverhampton.
Blackhurst & Bourne, earthenware manufacturers, Hadderbridge Pottery, Burslem, Stafford.
Blackhurst, J., earthenware manufacturer, Sandyford, Tunstall, Stafford.
Blackley, Young & Co., tube makers, 103, Holm-street, Glasgow.
Blacklock, D. & Co., electric bell fitters, 82 & 84, Jamaica-street, Glasgow.
Blacklock, Goudie & Co., india rubber manufacturers, 69, Jamaica-street, Glasgow.
Blacklock & Macarthur, oil refiners, 27, Leadenhall-street, London, E.C.
Blackmore, Joseph Thomas, metal merchant and dealer, 3, James-street, Birmingham.
Blackmore, J. T., mechanical engineer, 52, Greenfield-street, Whitechapel, London, E.
Blackwall Galvanized Iron Co., galvanizers, 4, Corbet-court, Gracechurch-street, London, E.C.
Blackwell, Geo. G., manganese merchant, 26, Chapel-street, Liverpool.
Blackwood, H., & Co., mathematical instrument makers, 210, Buchanan-street, Glasgow.
Blagg, T. H., electric bell fitter, 38, Little Underbank, Stockport.
Blair, Campbell & McLean, coppersmiths, 18, Scotland-street, Tradeston, Glasgow.
Blake, A., electro-gilder and plater, 18, Albemarle-street, Clerkenwell, London, E.C.
Blake, A., electric bell fitter, 47, Ablewell-street, Walsall.
Blakemore, V. & K., metal merchants, 8, Lime-street, London, E.C.
Blakemoor, W., jun., mining engineer, Heath Town, Wolverhampton.
Blakey, Emmott & Co., switch manufacturers, Northern Telegraph Works, Halifax.

Digitized by Google

Blanke, C. W. Julius & Co., steam engine indicator, vacuum, and hydraulic gauge makers, 63, St. Vincent-street, Glasgow.
Blashfield, Jas. Ritchie, drain pipe (stoneware) manufacturer, 1, Wharf, Praed-street, London, W.
Blaydon Chemical Company, chemical manufacturers, 15, Grey-street, Newcastle.
Bleckley, Charles Arnold, mechanical engineer, 61, King William-street, London, E.C.
Blenheim & Sons, electric bell manufacturers, Englefield-green, Egham, Staines, Middlesex.
Blenkarn, W., electric bell manufacturer, 82, Ferndale-rd., Clapham, London, S.W.
Bletchley Iron Works, steam engine makers, 46, Tower-chambers, Finsbury-pavement, London, E.C.
Blewitt, E., electro-plate manufacturer and dealer, 69, Hatton-garden, London, E.C.
Bloor, H. G., electro-gilder and plater, Orchard Works, Orchard-lane, Sheffield.
Blount, W. & Co., drain pipe (stoneware) manufacturers, Kinson Wharf, Albert Embankment, London, S.E.
Blow, G. W., mechanical engineer, 11, Queen Victoria-street, London, E.C.
Bloyd, Watson & Co., lead merchants, 11, Duke-street, London-bridge, London, S.E.
Bluck, Benjamin, draughtsman, 90, New-street, Birmingham.
BLUMBERG & Co., bronzists, 2, Cannon-street, London, E.C.
Blundell Bros., brass and copper founders, 23, West India Dock-road, London, E.
Boag, John & Son, sheet lead and lead pipe manufacturers, 68, Bath-street, Glasgow.
Boardman Bros., cotton waste merchants, Mill, Rochdale-road, Manchester.
Boaz, George, coppersmith and brazier, 103, West Ferry-road, London, E.
Boaz, Wm., mechanical engineer, 29, West India Dock-road, London, E.
Böcking, E. & Co., wire manufacturers, 101, Leadenhall-street, London, E.C.
Bocock, T. W., & Co., electro-gilders and platers, 39, Hatton-garden, London, E.C.
Bodkin, Wm., electric bell fitter, 21, Laurence Pountney-lane, London, E.C.
Bodley, E. F., & Co., earthenware manufacturers, Scotia Works, Burslem, Stafford.
Bodmer, J. J., mechanical engineer, 9, New Broad-street, London, E.C.
Bogle, Gilbert & Co., boiler makers, 47, Oswald-street, Glasgow.
Böhler Bros., & Co., steel manufacturers, 40, Prince's-street, Commercial-road, London, S.E.
BÖHN, ERNEST, glass blower, 33, Northampton-street, Clerkenwell, London, E.C.
Boik, Thomas, brass and copper founder, 10, Butcher-row, Ratcliff, London, E.
Boland, W., battery manufacturer, 1, Caroline-street, Birmingham.
Bolding, J., & Sons, lead merchants, 19, South Molton-street, Oxford-street, London, W.
Bolitho, Thos. & Wm., tin merchants, Penzance. London Office:—39, Lombard-street, London, E.C.
Bolling & Lowe, mechanical engineers, 2, Laurence Pountney-hill, London, E.C.
Bolton, J., & Son, electro-plate manufacturers and dealers, 64, George-street-parade, Birmingham.
BOLTON, T., & SON, manufacturers of telegraph wire, brass and copper tubes, and lightning conductors, Broad-street Metal Works, Birmingham, and Oakamoor, Cheadle, Staffordshire.
Bond & Harris, electro-plated ware manufacturers, 9, Parade, Birmingham.
Bonney & Wilkes, rivet manufacturers, Charles Henry-street and Albert Rivet Works, Macdonald-street, Sherlock-street, Birmingham.
Bonser, H., mining engineer, Clifton-terrace, Newcastle.
Boobbyer, J. H. & Sons, brass founders, 13 and 14, Stanhope-street, Newcastle-street, Strand, London, W.C.
Boorn, Thomas, steam packing maker, 33, Elliott-road, Brixton, London, S.W.
Boosie, A., mining engineer, Llay Hall Colliery, nr. Wrexham.
Boot, Henry, Ross & Co., lead merchants, 27, Crosby Hall-chambers, London, E.C.
Booth, G., & Sons, cotton driving band makers, Charlesworth, Broadbottom.
Booth, Geo. & Co., machine tool makers, Back-street, Halifax.
BOOTH, J., & CO., rolling mills and rolled metal manufacturers, Sheepcote-street, Birmingham. Telephone No. 311.
Booth, Charles, steam engine boiler maker, 2, Talbot-court, Gracechurch-street, London, E.C.
Booth, James, designer, 61, Orchard-street, Sheffield.
Booth, T. G., earthenware manufacturer, Church Bank Pottery, Burslem, Stafford.
Bootman, J., & Son, mechanical engineer, 51B, East-road, City-road, London, N.
Bootys & Stringer, oil merchants, 5, Jewry-street, Aldgate High-street, London, E.
Bores, J. & W., grease manufacturers, Robert-street, Hull.
Borley, W., machine tool maker, Suffolk-place, Arkwright-street, Nottingham.
Borries, Craig & Co., copper merchants, Lombard-street, Newcastle-on-Tyne.
Borron & Co., glass manufacturers and merchants, 92, Lancefield-street, Glasgow.
Borwell, J., lamp post manufacturer, Brittania Foundry, Burton-on-Trent.
Boseck, Paul, electrolier, lamp and lustre manufacturer, 14, South-street, Finsbury, London, E.C.
Bosher, A. B., & Co., file makers, 125, Queen-street, Sheffield.
Boss & Co., mechanical engineers, 19, Laurence Pountney-lane, London, E.C.
Boss, M., steam engine boiler maker, Measham, Atherstone.

Digitized by Google

Bossomaier, R., & Co., lightning conductor and wire rope manufacturers, 72, Finsbury-Pavement, London, E.C.
Boswell Brothers, file manufacturers, Cyprus Works, Mary-street, Sheffield.
Bott, Thomas & Co., opticians, 72, Argyle-street, Birkenhead.
Bott, George, wire worker and weaver, 60, Skinner-lane, Birmingham.
Bottomley & Hirst, wire drawers, Victoria Mills, Brighouse.
Bottomley, Robt. Forster, mathematical instrument maker, 11, Billiter-street, London, E.C.
Boundy, C., & Co., spelter manufacturers, Hartshay, Ripley, Yorkshire.
Boundy, Wm., metal merchant, 101, Leadenhall-street, London, E.C.
Boulter, Alf., mathematical instrument maker, 7½, St. John's-lane, Clerkenwell, London, E.C.
Boulton & Paul, wire netting manufacturers, Norwich.
Bourne & Grove, drain pipe manufacturers, The Bridge Steam Sawing Mills, Worcester.
Bourne, John & Co., india rubber manufacturers, 22, Felton-street, Hoxton, London, N.
BOURNE, JOSEPH & SONS, battery jar manufacturers, Denby Pottery, near Derby. London Office and Show Rooms, 6, St. Pancras Station, Euston-road, N.W. Every description of stoneware for chemists and electricians.
Bourne & O'Neil, electro-plate manufacturers and dealers, 9, Fenchurch-street, London, E.C.
Bourne, John, electro-plated ware manufacturer, 48, Newhall-hill, Birmingham.
Bourne, W., copper merchant, 6, John Dalton-street, Manchester.
Bousfield, E., electric bell fitter, 30, Castle-gate, Newark.
Bosquet, Isaac, tinfoil manufacturer, 28, Barbican, London, E.C.
BOWDEN, JOHN, glass bender, 44, High-street, Broad-street, St. Giles's, London, W.C.
Bowen & Co., brass and copper founders, 6, Mount Pleasant, Clerkenwell, London, W.C.
Bowen, Geo. & Son, electro-plate manufacturers and dealers, Victoria Works, 46, Augusta-street, Birmingham.
Bowen, W., glass manufacturer, 36, Clumber-street, Nottingham.
Bowes & Mincher, electro-gilders and platers, 18, Lower Rushall-street, Walsall.
Bowes, Scott & Read, mechanical engineers, Broadway-chambers, Westminster, S.W.
Bowes, A., spelter manufacturer, Rathsoy-street, Bermondsey New-road, London, S.E.
Bowie, James, mechanical engineer, 152, Shepherdess-walk, Hoxton, London, N.
Bowker W., manufacturing chemist, Lower Turn Lee, Glos op.
Bowkley, Alfd., mining engineer, Yew Tree House, Summerhill-road, Coseley, Bilston, Stafford.
Bowman, Duncan, & Co., methylated spirit makers & distillers, George-st., & Elizabeth-st., Macclesfield.
Boyce, C. J., & Co., driving band makers and mill furnishers, 32, St. Mary Axe, London, E.C.
Boyce, James, & Son, brass founders, 25 & 26, Alcester-street, Birmingham.
Boyd, John G., & Co., steel manufacturers, 63, Queen Victoria-street, London, E.C.
Boyd, Mackinlay, & Co., metal merchants, 27, Walbrook, London, E.C.
Boyd, H., electro plater, 114, Candleriggs, Glasgow.
Boynton, James, Wm., glass shade stand maker, 55, Crown-street, Soho, W.C.
Box, W. R., & Co., electro gilders and platers, 105, Middle Abbey-street, Dublin.
Bragg & Midwinter, ironfounders, 22, Cumberland-street, Birmingham.
Braby, Frederick, & Co., galvanizers, 352 to 364, Euston-road, London, N.W.
Braby, Frederick, & Co., felt manufacturers, 20, 22, 24, Great Clyde-street, Glasgow.
Bracher, Henry, optician, John-st., Cannon-street-road, London, E.
Bracknell Pottery Brick & Tile Co., stoneware drain pipe manufacturers, Bourne Valley Wharf, Nine Elms, London, S.W.
Bradbury, S. & Co., Limited, sulphate of copper manufacturers, Chemical Works, Russell-road, Rock Ferry, Birkenhead.
Bradbury, T., & Son, electro gilders & platers, 26, Bartlett's-buildings, London, E.C.
Bradbury, Chas., brazier, 35, Cox-street, West, Balsall Heath-road, Birmingham.
Bradbury, John, electric bell fitter, George-street West, Macclesfield.
Bradford, John & Sons, oil refiners, 12, Inner Temple, Liverpool.
Bradford, Thos. & Co., mechanical engineers, 140, 143, High Holborn, London, W.C.
Bradley & Co., galvanizers & galvanized iron wire manufacturers, Albion Works, Mount Pleasant, Bilston, Staffordshire.
Bradley & Hall, glass merchants, 82, London-road, Sheffield.
Bradley, F., manufacturing chemist, Forest Side, Sutton-in-Ashfield.
Bradley, James S., 162, Edmund-street, Birmingham.
Bradley, Joseph John, brass caster, 15, Henrietta-street, Birmingham.
Bradley, Thomas, drain pipe manufacturer, Booth's Mill, Knutsford.
Bradley, Wm. Geo., wood engraver, 303, Strand, London, W.C.
Bradshaw, James, rope & twine manufacturer, Winsford, R.S.O.
Brady, J. & Sons, mechanical engineers, 133, Shadwell High-street, London, E.
Bragg, W., & Son, mechanical engineers, Guildford-street, York-road, London, S.E.
Braham, Frederick Joseph, optician, Plantagenet-buildings, Richard-street, Hockley, Birmingham.

Digitized by Google

Braham, Octavius, optician, 3, Sekforde-street, St. John's-street-road, London, E.C.
Brailsford, S. W., electric bells and tide indicators, 41, Trinity-square, London, E.C.
Bramham, Wm. & Co., cotton waste merchants, 82, Bow-road, London, E.
Bramham, J., lightning conductor manufacturer, 104, Dale-street, Liverpool.
Bramwell, Fred., mechanical engineer, 37, Great George-street, London, S.W.
Brandeis, Goldschmidt & Co., metal merchants, 8, Austin Friars, Old Broad-street, London, E.C.
Brandon, John, rope and twine manufacturer, King-street, Knutsford.
Brandram Bros., & Co., sulphur refiners, 5, Philpot-lane, London, E.C.
Brannan, Wm. electric bell fitter, Commonhall-street, Chester.
Branson, J. H., metal merchant, 25, Change-alley, Sheffield.
Branston & Co., wood engravers, 119, Salisbury-square, London, E.C.
Brash, Robert, jun., manufacturing chemist, 81, Hamilton-street, Govan, Glasgow.
Bratt, J. & A., galvanisers, Clarence-street, Wolverhampton.
Bray & Co., tool makers, 4, Great St. Andrew-street, Bloomsbury, London, W.C.
Bray, George & Co., electrolier lamp and lustre manufacturers, Blackman-lane, Leeds.
Bray, Nicholas, designer, 13, Cheney-row, Sheffield.
Bray, Wm. Thos., mathematical instrument maker, 536, Old Ford-road, Bow, London, E.
Brayne, Francis & Co., chemical glass and apparatus manufacturers, Three Mills-lane, St. Leonard-st., Bromley, London, E.
Brazier, Edward, mechanical engineer, New Cross-road, London, S.E.
Brazier, Benj., brass caster, 45½, Smith-street, Great Hampton-row, Birmingham.
Brazilian Submarine Telegraph Company, Limited, 8, Great Winchester-street, London, E.C.
Breckin, John, draughtsman, 8, Westfield View, Westgate, Rotherham.
Brecknell, Turner, & Sons, electrolier lamp & lustre manufacturers, 31 & 32, Haymarket, London, S.W.
Breeden, (J. & W.) & Booth, steam engine boiler fittings manufacturers, Cheapside and New Mill Wks.; Offices at Cheapside Works, Birmingham.
Breedon, Jas. Chas., mathematical instrument maker, 13, Douglas-street, Deptford, S.E.
Breffit, Edgar & Co., chemical glass and apparatus manufacturers, 83, Upper Thames-street, London, E.C.
Bremner, J., consulting engineer, 66, Wright-street, Hull.
Brenner, John, A., & Co., oil merchants, 72, Mark-lane, London, E.C.
Brettell, J. O. & C. E., iron tank manufacturers, 11, Queen Victoria-street, London, E.C.
Brettell, J. O., brass founder, Shrub Hill, Worcester.
Brettell, T., mining engineer, 188, High-street, Dudley.
Brewer, J., electric bell fitter, 2, Agard-street, Derby.
Brewitt, J., electro-plate manufacturer and dealer, 21, Gerge-street, Euston-road, London, N.W.
Briddon Bros., electro-gilders and platers, 17, Ely-place, Holborn, London, E.C.
Bridge (The), & Roofing Co., mechanical engineers, 98 & 91, Palace-chambers, London, S.W.
Bridger & Leonard, electro-plate manufacturers and dealers, 77, Caroline-street, Birmingham.
Bridger, Josh., copper smelter and refiner, Charles-street, Hebburn New Town, Newcastle-on-Tyne.
Bridger, J. C., electro-gilder and plater, 7, Regent-parade, Birmingham.
Bridges, Thos., & Son, mechanical engineers, Horseleyfields, Wolverhampton.
Bridgeton Pottery, pottery manufacturers, Boden-street, London-road, Glasgow.
Bridgwater, B., mechanical engineer, 53, East-road, City-road, London, N.
Bridgwood & Son, earthenware manufacturers, East Vale, Longton, Staffordshire.
Briggs Bros., lead merchants, 1, Belgrave-gate, Leicester.
Briggs, H. R. & Co., oil refiners, 101, Leadenhall-street, London, E.C.
Briggs, Edward, mechanical engineer, 17, Dorchester-street, New North-road, London, N.
BRIGHT, Sir CHARLES B., telegraph and electrical engineer, 31, Golden-square, London, W.
BRIGHT, EDWARD B., telegraph, submarine and electrical engineer, 31, Golden-square, London, W.
Bright, E. B., electric alarms, 45, Gerrard-street, Islington, London, N.
Brightside Foundry Co., ironfounders, Newhall-road, Sheffield.
Brignall, Geo. Fredk., electrolier lamp and lustre manufacturer, 144, Newington-butts, London, S.E.
Bringes & Goodwin, mechanical engineers, 25, Fieldgate-street, London, E.
BRINKWORTH, W. H., electrotyper, Caledonian Works, Bell Barn-road, Birmingham.
Brinton & Son, iron merchants, 153, Great Charles-street, Birmingham.
Bristow, Samuel, C. & Co., oil merchants, 21, Great St. Helen's, London, E.C.
Britannia Pottery, pottery manufacturers, 136, Glebe-street, Glasgow.
Britannia Rubber & Kamptulicou Co., india rubber manufacturers and dealers, makers of ebonite, flexible gas tubes, telephone apparatus, and vulcanite, 32, Cannon-street, London, E.C.
British Association for the Advancement of Science (learned & scientific) 22, Albemarle-st., London, W.
BRITISH ELECTRIC LIGHT CO., LIMITED, electric light apparatus manufacturers and contractors, Heddon-street, Regent-street, London, W.
British & Foreign Copper Company, 28, King-st., Liverpool.
British and Foreign Metaline Co., mechanical engineers, 81, Gracechurch-street, London, E.C.

Digitized by Google

British & Irish Telephone & Electric Works, Co., electric light apparatus, 20, Regent-st., London, S.W.
British Manganese Co., Limited, manganese merchants, 2, Drapers'-gardens, London, E.C.
British Telegraph Manufactory, Limited, 406, Euston-road, London, N.W.
Brittain & Foreman, electrical engineers, 21, Hermes-street, Pentonville-road, London, N.
Brittain, J. & T., brass founders, Hope Foundry, Chesterton, Newcastle.
Britton & Sons, electric bell fitters, 17, Carlton-street, Nottingham.
Broad, George, brass and copper founder, 20, Colville-place, Charlotte-street, London, W.
Broadfoot, John & Sons, coppersmiths, 55, Finnieston-street, Glasgow.
Broadhead, Job, & Son, composition for preventing incrustation in steam boilers, Globe Works, Penistone-road, Sheffield.
Broadhurst & Co., india rubber manufacturers, 63, Bishopsgate-street Within, London, E.C.
Broach, Geo., melter, Belle Isle, York-road, King's-cross, London, N.
Broadhurst, David, iron founder, 18, Atherton-street, Walsall, Birmingham.
Broadhurst, J., earthenware manufacturer, Portland Pottery, Fenton Culvert, Stoke-on-Trent.
Brock, James, chronometer maker, 64, George-street, Portman-square, London, W.
Brockbank & Atkins, chronometer makers, 6, Cowper's-court, Cornhill, London, E.C.
Brockelhurst, John, & Thomas & Son, silk spinners, Hardsfield-road, Macclesfield.
Brockley, George, brass and copper founder, East Ferry-road, Poplar, London, E.
Brocot, Achille & Son, bronzists, 8, Red Lion-square, London, W.C.
Bradbury Bros., electrolier lamp manufacturers, 32, Bishop-street, Birmingham.
Bromert, F. & Co., zinc merchants, 98, Cannon-street, London, E.C.
Bromfield, J. Coley, dynamo and magneto-electric machine maker, 49, Selborne-road, Hove, Sussex.
Bromwich, William, wire worker and weaver, 7, New John-street, Birmingham.
Brook, Hy., & Co., india rubber manufacturers & dealers, 10, Featherstone-bldgs, Holborn, London, W.C.
Brooke, Wm., bolt and nut maker, Boardman-street, Hyde.
Brooker, Dore & Co., galvanisers, 4, Corbet-court, Gracechurch-street, London, E.C.
Brooks, H., & Co., telegraph wire manufacturers, Regent Works, Queen's-road, Manchester.
Brooks, Phillips, & Co., zinc merchants, 5, 6, & 7, Paddington-green, London, W.
Brooks & Power, lead pipe manufacturers, Churchgate, Bolton.
Brooks, Wm., mechanical engineer, 14, Wild-court, Lincoln's-inn, London, W.C.
Brooks, Wm., mechanical engineer, 7, Little Somerset-street, Aldgate, London, E.
Brooksbank, T., optician, Drury-hill, Nottingham.
Brookwood Copper Mine Company, Buckfastleigh, Devon.
Broome & Whaley, machine tool makers, Buxton-road, Macclesfield.
BROTHERHOOD, P., high speed engine maker, 15, Belvedere-road, London, S.E.
Brotherton, J., & Co., iron telegraph pole manufacturers, Monmore-green, Wolverhampton.
Brotherton, John, tube makers, 3, Jeffrey's square, St. Mary Axe, London, E.C.
Brough & Blackhurst, earthenware manufacturers, Waterloo Works, Stafford-street, Longton, Stafford.
Broughall, J., mining engineer, Cradley, Brierley-hill.
BROUGHTON COPPER COMPANY, LIMITED, 122, Cannon-street, London, E.C.
Broughton, W. H., & Co., iron tube makers (steam, hydraulic & boiler), Alpha Works, Smethwick, B'ham.
Browett, Alfred, electro-plater and gilder, 14, Dean-street, Birmingham.
Brown, Armstrong, & Co., mechanical engineers, 11, Queen Victoria-street, London, E.C.
Brown Bros., & Co., mechanical engineers, 80, Cannon-street, London, E.C.
Brown, Bayley & Dixon, steel manufacturers, 1, Queen Victoria-street, London, E.C.
Brown & Bellamy, brass founders, 208A, Aston-road, Birmingham.
Brown, J., & Co., Limited, iron manufacturers, Atlas Steel and Iron Works, Saville-st. East Sheffield.
Brown, J., & Co., electro gilder and plater, 3 & 4, Warstone-parade East, Birmingham.
Brown, J., & Co., wire drawers, Park-lane Wire Mills, Preston.
Brown, John, & Co., steel manufacturers, 12, Fenchurch-street, London, E.C.
Brown, J. B., & Co., galvanizers, 90, Cannon-street, London, E.C.
Brown, John Douglas, & Co., asbestos merchants, 351, Mile End-road, London, E.
Brown, Robert & Son, crucible makers, 16, Great Enoch-square, Glasgow.
Brown, T., & Co., copper merchants, 8, Thornton-road, Bradford.
Brown, T., & Co., copper merchants, 19, Call-lane, Leeds.
Brown, Westhead, Moore & Co., earthenware manufacturers, Cauldon-place, Stoke-on-Trent.
Brown, D. H. S., mechanical engineers, 61, Gracechurch-st., London, E.C.
Brown, E., electro gilder and plater, 27, High-street, Winchester, Hants.
Brown, F., electrician, 44, Upper George-street, Bryanstone-square, London, W.
Brown, G., wire drawer, Lancaster-road North, Preston.
Brown, George, electric bell fitter, 16, Harford-street, Birmingham.
Brown, Hugh, mathematical instrument maker, 213, Argyle-street, Glasgow.
Brown, J., lamp post manufacturer, Derby-street, Bolton.
Brown, James, mathematical instrument maker, 76, St. Vincent-st., Glasgow.

Digitized by Google

Brown, James, galvaniser, 76, St. Vincent-street, Glasgow.
Brown, John, iron merchant, Wicker Arches, Walker-street, Sheffield.
Brown, Joseph, electric bell fitter, 29, Henrietta-street, Birmingham.
Brown, J. W., electro gilder & plater, 30, Gloucester-street, Clerkenwell, London, E.C.
Brown, M. B., manufacturing and metallurgical chemist, Carntyne Chemical Works, Parkhead, Glasgow.
Brown, Samuel, steel manufacturer, 20, Garden-st., Sheffield.
Brown, T., electro gilder and plater, 7, Spencer-street, London, E.C.
Brown, Walter B., civil engineer, 10, Victoria-chambers, London, S.W.
Brown, Wm. Thos, optician, 12, Benjamin-street, Cow Cross-street, London, E.C.
Brown & Co., electrolier lamp & lustre manufacturers, 186, Piccadilly, London, W.
Brown & Co., patent agents, 5, Southampton-buildings, Chancery-lane, London, E.C.
Brown & Boby, mechanical engineers, 11, Queen Victoria-street, London, E.C.
BROWNE, NEWNHAM, patent and design registration agent, 91, Queen-street, Cheapside, London, E.C. Gives special attention to ELECTRICAL INVENTIONS. Agencies in most FOREIGN COUNTRIES.
Brownfield, W. & Sons, earthenware manufacturers, Cobridge, Burslem, Stafford.
Brownhills Pottery Co., earthenware manufacturers, Tunstall, Stoke-on-Trent.
Browning, James, & Henry, & Co., oil merchants, 26 and 28, St. John-street, London, E.C.
Browning, J., mathematical instrument maker, 63, Strand, London, W.C.
Brownlie & Murray, galvanisers, Possill Iron Works, Possill-road, Glasgow.
Broxburn Oil Co., oil merchants, 21, St. Helen's-place, London, E.C.
Bruce, Robert, boiler maker, 16, St. Enoch-square, Glasgow.
Brunner, Mond & Co., alkali manufacturers, Winnington Park, Northwich.
Brunson, J. H., manganese merchant, 25, Change-alley, Sheffield.
Brunton & Trier, mechanical engineers, 19, Great George-street, London, S.W.
Brush Electric Light Co. of Ireland, electric light & power contractors, 31, Lombard-st., London, E.C.
Brush Electric Light Power Co. for the Channel Islands & Isle of Man, Limited, electric light & power contractors, 88, Bishopsgate-street Within, London, E.C.
Brush Electric Light & Power Co of Scotland, Limited, electric light and power contractors, 9, New Broad-street, London, E.C.
Brush Midland Electric Light and Power Co., 31, Lombard-street, London, E.
Bryse, Andrew S., oil refiner, 23, St. Mary Axe, London, E.C.
BRYDEN, John & Sons, domestic electricians, bell-hanging engineers, and manufacturers of electric bells, 2, Bulstrode-street (corner of Welbeck-street, Cavendish-square. Established 1809.
Bryden, Wm. & Son, brass founders, 17, West Regent-st., and 55, George-street, Glasgow.
Bryer, John, chronometer maker, 53 & 54, Barbican, London, E.C.
Buchan, H., electro lamp and lustre manufacturer, 50, Oswald-street, Glasgow.
Buchan, T., & Sons, chandelier makers, 249, Argyle-street, Glasgow.
Buchanan & Co., felt manufacturers, 12, Princes-square, Glasgow.
Buchanan & Co., consulting engineers, Prince's Dock Chambers, Prince's Dock-street, Hull.
Buchanan, G., & Co., mechanical engineers, 25, Bucklersbury, London, E.C.
Buchanan, J., & Son, steam engine makers, 77, Brasenose-road, Liverpool.
Buck & Watkin, machine tool makers, 54A, King-street West, Manchester.
BUCK, C., electro-gilder and plater, St. John's-lane, London, E.C.
BUCK, H. C., electrician, 63, Queen Victoria-street, London, E.C.
Buckland, William, mathematical instrument maker, 30, Wilmington-square, London, W.C.
Buckler, W. J., electric bell fitter, 3, North-street, Rugby.
Buckley, Wood, & Co., earthenware manufacturers, High-street Pottery, Burslem, Stafford.
Buckley, J., electro-plate & nickel silver spoon & fork manufacturer, 32, Hockley-hill, Birmingham.
Buckley, J., copper merchant, Store-street, London-road, Manchester.
Bucknall, A., electro lamp and lustre manufacturer, 19, Renshaw-street, Liverpool.
Bucknell, William, gilder, 25, Mount-street, Chapel Fields, Coventry.
Buckney, Daniel, chronometer maker, 11, Southampton-row, Holborn, London, W.C.
Budd, Edward, copper company & merchant, Bond-court House, Walbrook, London, E.C.
Bueler, Hodson & Co., manufacturing chemists, 56, College-street, City, Glasgow.
Bugden, Thomas, & Son, India rubber manufacturers, 107, Goswell-road, London, E.C.
Bull, E., leather driving band maker, 89, Shoreditch, High-street, London, E.
Bull, William, oil merchant, 447, West Strand, London, W.C.
Bullas, S. W., galvanizer & galvanized iron wire manufacturer, 5, St. John's-road, Kate's-hill, Dudley.
Bullen, T. L. H., eelectrotyper, 28, Warwick-lane, London, E.C.
Buller & Co., telegraph insulator manufacturers; works, Staffordshire potteries, Hanley; and 32 & 33, Queen-street, London, E.C.
Bullivant & Co., lightning conductor manufacturers, 72, Mark-lane, London, E.C.
Bullmore, William E., draughtsman, 65, Oxford-street, Sheffield.
Bullock, J., steam boiler maker, Market-street, Eastwood, R. S. O.

Digitized by Google

Bullock, T. W., optician, 27, Stanley-street, Macclesfield.
Bennett & Co., mechanical engineers, 90, Queen-street, Cheapside, London, E.C.
Bushby, Edwin, wire worker & weaver, 9 & 10, Woodcock-street, Birmingham.
Bushby, George, wire worker and weaver, 14, Ashton-street, Birmingham.
Busch, John, steam engine governor maker, Oldham, Lancashire. Busch's patent gas governor.
Bush, J., brass finisher, Curzon-street, Derby.
Bush, Thomas, glass bender, 11, Central-street, St. Luke's, London, E.C.
Bushell, G. & J., electro-plate manufacturers and dealers, 6½, Regent-parade, Birmingham.
Bushell, Charles, designer, 103½, Vyse-street, Birmingham.
Buss, J. R., electro-plater, 44, Victoria-street, Manchester.
Burden, James, gauge maker, Conybere-street, Birmingham.
Burford & Son, rivet manufacturers, 18, Abbey-street, Lodge-road, Birmingham.
Burge & Warren, vulcanite manufacturers, 42, Kirby-street, Hatton-garden, London, E.C.
Burgess & Leigh, earthenware manufacturers, Hill Pottery, Burslem, Stafford.
Burgess, H., electro-gilder and plater, New Briggate, Leeds.
Burgess, H., earthenware manufacturer, Kiln Croft Works, Chapel-lane, Burslem, Stafford.
Burghard, Dr. Charles A., A.F.I.C., analytical chemist, 110, King-st., Manchester.
Burgoyne, Burbidges, Cyriax & Farries, analytical chemists, 16, Coleman-street, London, E.C.
Burland, W. J., electro-lamp and lustre manufacturer, 329, Rochdale-road, Manchester.
Burleigh, John, & Co., india rubber manufacturers, 223, Edgware-road, London, W.
Burley, B. B., tool manufacturer, 9, Watson-street, Glasgow.
Burley, J., electro and plate manufacturer and dealer, 44, Warstone-lane, Birmingham.
BURLEY, WM., electric bells, burglar alarms and safety alarm bolts. Experienced fitters sent to all parts. Proprietor of Young's patent cord holdfast for Venetian blinds and patent simplex ratchet muslin blind tightner, Tower Chambers, London Wall, London, E.C.
Burley, Wm. Henry, mechanical engineer, 53, Borough-road, London, S.E.
Burling, T., electric bell fitter, 9, Brady-st., Whitechapel-road, London, E.
Burn, Charles, mechanical engineer, 26, Budge-row, London, E.C.
Burn, P., electro-gilder and plater, 26, Wicklow-street, Dublin.
Burne, J. W., mining engineer, 3, Bridgeman-place, Walsall.
Burney & Co., iron tank makers, Millwall Docks, London, E.
Burnett, Thomas, & Son, soda manufacturers, Lombard-street, Newcastle.
Burns, Joseph, lightning conductor fitter, 6, Comely Park-place, Glasgow.
Burr, Alexander, galvanizer, 62, Howard-street, Glasgow.
Burr, Charles, optician, 195, Devon's-road, Bromley, London, E.
Burr, G., lead manufacturer, Lead Works, Shrewsbury.
Burrell & Co., oil refiners, 150, Leadenhall-street, London, E.C.
Burrell, Charles, & Sons, mechanical engineers, 123, Cannon-street, London, E.C.
Burroughs, Wellcome & Co., manufacturers & metallurgical chemists, 7, Snow-hill, London, E.C.
Burrell, A. E., oil refiner, 3, Jewry-street, Aldgate, London, E.
Burroughes & Watts, electrolier lamp, lustre, &c., manufacturers, 19, Soho-square, London, W.
Burrows, S. H., & Son, iron masters, South Yorkshire iron works, Attercliffe, Sheffield.
Burslam, Wm. H., rope and twine manufacturer, Mill-street, Congleton.
Burt, Boulton, & Haywood, sulphate of ammonia manufacturers, 64, Cannon-street, London, E.C.
Burt, J., & Co., leather driving band makers, 70 & 71, Bishopsgate-street Within, London, E.C., and at Glasgow.
Burt, J. H., & Co., metal merchants, 37, Gracechurch-street, London, E.C.
Burt, J. H., & Co., wire manufacturers, 1A, Laurence Pountney-lane, London, E.C.
BURT, G., electro lamp, lustre, &c., manufacturer, 10, Great Charles-street, Birmingham.
Burton, John, oil merchant, 36, Brown-street, Macclesfield.
Burton, John, brass founder, Borough brass and iron works, Stalybridge.
BURY, H., electric light engineer, Manchester-chambers, 46, Market-street, Manchester.
Butcher, W. & S., steel manufacturers, 41, Eyre-lane, and 13, Furnival-street, Sheffield.
Butler, Jas., & Sons, wire workers and weavers, 4, Elm-street, Gray's-inn-road, London, W.C.
Butler & Tanner, electrotypers, 18, Paternoster-square, E.C.
Butler, E., telegraph contractor, 36, Corn Exchange-chambers, Chester.
Butler, E. B., telegraph engineer, Oxford-chambers, 71, Lord-street, Liverpool.
Butler, S., electro-gilder and plater, 8, Hewett-street, Curtain-road, London, E.C.
Butler, V., electrician, Lord-street, Liverpool.
Butt, J. M., & Co., lamp post manufacturers, Kingsholm Iron Works, Gloucester.
Butterfield & Co., oil merchants, 2, Barge-yard, Bucklesbury, London, E.C.
Butterfield, F. & J., & Co., machine tool makers, Midland tool works, Keighley, and 16, Bishopsgate-street Without, London, E.C.
Butterley Co., steel manufacturers, (William Arthur, agent), 9, Norfolk-row, Sheffield; & Butterley-street, Leeds, & 110, Cannon-street, London, E.C.

Digitized by Google

Butterworth Brothers, gauge glass manufacturers, Newton Heath glass works, Manchester.
Butterworth, MacArthur & Co., copper merchants, Marsh-street, Bristol.
Butterworth, Charles, wood engraver, 356, Strand, London, W.C.
Butterworth, James, steam engine boiler maker, King-street West, Manchester.
BUTTON, BENJAMIN, dealer in works of art, 61, Regent-street, London, E.C.
Bye, John, wood engraver, 9, Essex-street, Strand, London, W.C.
Byers, J., & Sons, lead manufacturers, I'Anson-square, Darlington.
Byham & Co., brass and copper founders, 9, New Broad-street, London, E.C.
Byrn Dufi Lead Mining Company, Limited, 15, Lord-street, Liverpool.

C.

Cadiôt, E. H. glass cells (battery) manufacturer, 6, Lime-street, London, E.C.
Cadman, Charles & Sons, file manufacturers, Canal Works, Cadman-street, Sheffield.
Cain, John, & Son, metal merchants and dealers, 53, Lichfield-road, Birmingham.
Caine, W. S., & N., copper merchants, Dutton-street, Liverpool.
CALDER, J. J., & CO., electric light engineers and contractors, 154, Westminster-bridge-road, London, S.E.
Caldicot Iron & Wire Co., wire drawers, Caldicot, Chepstow.
Caldwell, W. E., electric bell fitter, 15, South Sherwood-street, Nottingham.
Caledonian Tube Co., iron tube makers, 27, Leadenhall-street, London, E.C.
Callaghan, Wm., & Co., opticians, 23A, New Bond-street, London, W.
Callaghan, Wm., lightning conductor fitter, 79, Barloch-street, Glasgow.
Callender's Bitumen Telegraph & Waterproof Co., Limited, telegraph works, 101, Leadenhall-street London, E.C.
Calmell, Louis, mechanical engineer, 3, Pugh's-place, Carnaby-street, London, W.
Calman & Co., lead merchants, 159, Commercial-road East, London, E.
CALORIC ENGINE & SYREN FOG SIGNAL CO., caloric engine makers, 24, Budge-row, Cannon-street, London, E.C.
Calvert, J., stoneware manufacturer, Langley Mill, Notts, R.S.O.
Calvert, Reuben, machine tool maker, Roebuck-yard, Northgate, Halifax.
Cam, J. J., iron tube manufacturer, 40, New-street, Worcester.
Cambrian White Lead Co., Limited, lead manufacturers, Brymbo, Wrexham.
Camelon Iron Co., gas pipe makers, 236, Upper Thames-street, London, E.C.
Cameron & Campbell, manufacturing chemists, 106, New-road, Parkhead, Glasgow.
Cameron, D., electric bell fitter, 142, North-street, Glasgow.
Cameron, Jas., analytical chemist, 30, Romily-road, Finsbury-park, London, N.
Cameron, M. J., analytical chemist, 52, Lime-street, London, E.C.
Camm, Bagshaw, & Co., file manufacturers, Leadmill Steel works, Matilda-lane, Sheffield.
Cammell, Charles, & Co., Limited, iron manufacturers (Edwin Leach, commercial man. William Naylor, works man.). Yorkshire Steel and Iron Works, Penistone, and Cyclops Works, Saville-st., Sheffield.
Campbell & Co., manufacturing chemists, 47, Cochrane-st., Glasgow.
Campbell, A., & Co., boiler makers, 71A, Finnieston-street, Glasgow.
Campbell, Achmach & Co., gutta percha merchants, 25, Jamaica-street, Glasgow.
Campbell, Donald & Co., oil merchants, 10, Cullum-street, London, E.C.
Campbell & Hattan, coppersmiths, St. James's-street, Paisley-road, Glasgow.
Campbell, John, & Co., metal merchants, 52, Gracechurch-street, London, E.C.
Campbell, J., & Co., electrical apparatus manufacturers, 20, Wheeldon-street, Sheffield.
Campbell, T. B. & Sons, lead pipe manufacturers, 29, Wellington-street, Glasgow.
Campbell, T. B., & Co., lead pipe manufacturers, 8, Picardy-place, Edinburgh; and at Leith.
Campbell, Chas., optician, 37, Nelson-street, City, Glasgow.
Campbell, D., mechanical engineer, 3, Westminster-chambers, London, S.W.
Campbell, Joseph M'Gregor, optician, 30 & 32, King's-road, Chelsea, London, S.W.
Campbell, Robt., glass manufacturer and merchant, 8, Elderslie-street, Glasgow.
Campbellfield Pottery Co., pottery manufacturers, Rochester-street, Gallowgate, Glasgow.
Campion, J., wire drawer, 65, Ellesmere-road, Roman-road, London, E.
Canadian Copper and Sulphur Co., Limited, 16, Bothwell-street, and 128, Hope-street, Glasgow.
Candler, Geo., zinc merchant, Brixton-hill, London, S.W.
Candlish, Robert, mechanical engineer, Bishopsgate-churchyard, London, E.C.
Cannadine, John, brass and copper founder, 353, New-cross-road, London, S.E.
Cannetine Oil Co., oil merchants, 62, Bishopsgate-street Within, London, S.E.
ANNING, SIR SAMUEL, consulting electrical engineer, 7, Gt. Winchester-street-buildings, Old Broad-street, London, E.C.

Digitized by Google

Caplatzi, Antonio, chemical glass and apparatus manufacturer, 3, Chenies-st., Bedford-sq., London, W.C.
Cape Copper Mining Co., Limited, 6, Queen-street-place, London, E.C.
Capham, Chas., electric bell fitter, 20, Clarges-street, Piccadilly, W.
Capper, George, steel fitter, roller & forger, Chantrey Works, Besemer-road, Attercliffe, Sheffield.
Caraccio, John & Michael, wire workers, 221, Gray's-inn-road, London, W.C.
Carder, G. & C., earthenware manufacturers, Mount Pleasant, Bilston, Stafford.
Carlaw, David, steam engine indicator, vacuum, and hydraulic gauge maker, 54 & 56, Ropework-lane, Glasgow.
Carless, Plaxton Saml., oil merchant, 40 Basinghall-street, London, E.C.
Carloss, S., electro gilder and plater, 23, St. James's-walk, Clerkenwell, London, E.C.
Carloss, W. I., electro-gilder and plater, 66, Hatton-garden, London, E.C.
CARLYLE, W. A., electrical and galvanic instrument maker, 91 & 92, Constitution-hill, Birmingham.
Carnelley & Co., electro-plate manufacturers and dealers, 2, Caroline-street, Birmingham.
Carnelly, Edward, electro-plater and gilder, 13, Hockley-street, Birmingham.
Carpenter Bros., leather driving band makers, 44, Wellington-street, S.E.
Carpenter & Co., copper merchants, High-street, Old Brentford, Middlesex.
Carpenter, Ford & Co., electrolier, chandelier makers, 22, Bishop-street South Birmingham.
Carpenter, Wm. John, & Co., oil merchants, 27, Cheapside, London, E.C.
Carpenter & Westley, opticians, 24, Regent-street, London, S.W.
Carpenter, H. S., analytical chemist, Holborn Viaduct, London, E.C.
Carr & Co., manganese merchants, Bridgegate, Rotherham.
Carr & Co., metal merchants, Compton-chambers, Effingham-street, Rotherham.
Carr, Charles, brass founder, Broad-street, Birmingham; and Grove-lane, Smethwick.
Carr, Thomas, rope & twine manufacturerer, Middlewich.
Carr, Walter, mechanical engineer, 10, Duke-street, London, W.C.
Carrick & Brockbank, copper merchants, 26, Pall Mall, Manchester.
Carrick, Robe, & Co., glass manufacturers and merchants, 71, Brown-street, Glasgow.
Carrington & Co., mechanical engineers, 26, Budge-row, London, E.C.
Carrington & Co., electro-plate manufacturers and dealers, 130, Regent-street, London, W.
Carrington, Geo., electro-plater, 44, Arundel-lane, Sheffield.
Carson, R., consulting engineer, 5, Minerva-terrace, Hull.
Carter, John, & Son, chronometer makers, 61, Cornhill, London, E.C.
Carter, Wm., jun., & Co., brass and copper founders, High-street, Stratford, London, E.
Carter, Henry William, wire worker and weaver, 108, Longmore-street, Birmingham.
Carter, James Douglas, india rubber manufacturer and dealer, 27, St. James's-walk, Clerkenwell, London, E.C.
Carter, Wm. Edward, chronometer maker, 35, Cheapside, London, E.C.
Carter, Benj., lead merchant, 228, Jubilee-street, Commercial-road, London, E.
Cartier, L., & Co., electric light engineers, Mansion House-chmbs, 11, Queen Victoria-st., London, E.C.
Cartland, James, & Son, brass founders, 95 to 98, Constitution-hill, Birmingham.
Cartledge, Arthur, composition maker, &c., 37 & 38, Mark-lane, London, E.C.
Cartlidge, W. E., earthenware manufacturer, Villa Pottery, Cobridge, Burslem, Stafford.
Cartmell, R., analytical chemist, 4, Horninglow-st., Burton-on-Trent.
Cartwright, C., & Sons, electro-plate manufacturers and dealers, 13, Edgbaston-street, Birmingham.
Cartwright, Dickinson, & Gregory, bolt and nut manufacturers, Sheaf Island Works, Pond-hill, Shffld.
Cartwright & Edwards, earthenware manufacturers, Trentham-road, Longton, Stafford.
Cartwright, Mead & Purvis, lead merchants, 4, Water-lane, London, E.C.
Cartwright, J., electric bell fitter, Whittington, Chesterfield.
Caville Chemical Co., Limited, chemical manufacturers, 42, Mosley-street, Newcastle.
Cary, Wm. (Gould & Porter), optician, 181, Strand, London, W.C.
Casartelli, Joseph, mathematical instrument maker, 34, Hatton Garden, London, E.C.
Casella, L., electrical instrument maker, 147, Holborn Bars, London, W.C.
Cashmore, S., & Co., lead pipe manufacturers, 41, Victoria-street, Bristol.
Cashmore & Morton, tool makers, 104, Vyse-street, Birmingham.
Caslake, James, mechanical engineer, 152, Kentish Town-road, London, N.W.
Cassell, Smith, & Co., oil merchants, 80, Fenchurch-street, London, E.C.
Cassell, Samuel, joiners' tool maker, 129, Conybere-street, Birmingham.
Castel & Latta, mechanical engineers, 3, Lombard-court, London, E.C.
Castle & Pagan, compass makers, Commercial-road, Hull.
Castle Rubber Co., 71, india rubber manufacturers, Finnieston-street, Glasgow.
Caston, George, & Co., wire workers and weavers, 29, Great Dover-street, London, S.E.
Caston, Samuel, brass and copper founder, 17, Fort-street, Spitalfields, London, E.
Catchpole & Co., boiler non-conducting composition makers, 154, Ormside-street, London, S.E.
Catchpole, Edw., & Sons, grease manufacturers, Plough-bridge, Plough-road, Rotherhithe, London, S.E.
Catchpole, Henry Wm., & Septimus, grease manufacturers, Acre wharf, Bow-bridge, London, E.

Digitized by Google

Cater, Walker, & Son, steam engine makers, Great Guildford-street, Borough, London, S.E.
Catmur, Thos., optician, 66, Whitechapel, High-street, London, E.
Caton, Mrs. E. A., electro-gilder and plater, 31, Ludgate-hill, London, E.C.
Cattell, A. S., & Co., wood engravers, 28, Farringdon-street, London, E.C.
Catterson, Samuel Prince, electrolier lamp and lustre manufacturer, 34 & 36½, Great Dover-street. London, S.E.
Caulfield & Co., glass manufacturers and merchants, 68, Jamaica-street, Glasgow.
Cauvet, Charles, & Co., tinfoil manufacturers, 238, Blackfriars-road, London, S.E.
Caverhill, W. Chas., electric bell fitter, 50, Budge-street, Berwick-on-Tweed.
Cesena Sulphur Co., sulphur refiners, 4, Finsbury-circus, London, E.C.
CETTI, E., chemical apparatus manufacturer, 36, Brook-street, Holborn, London, E.C. Glass works Pratt-st., Lambeth, London, S.E.
Chadburn Bros., mathematical instrument makers, Albion Works, 30, Nursery-street, Sheffield.
CHADBURN & SON, telegraph instrument makers, 71, Lord-street, Liverpool.
Chadburn & Son, electric lamp arc manufacturers, Liverpool.
Chadburn & Sons, telegraph engineers, 96, Fenchurch-street, London, E.C.
Chadderton & Haigh, turbine and water wheel makers, Alma Bridge Works, Dukinfield.
Chadwick, H., & Co., manufacturing chemist, 83, West-street, Tradeston, Glasgow.
Chadwick, J., & Son, steam engine makers, Prince's Bridge Ironworks, Manchester.
Chadwick, John Wm., draughtsman, 100, Colmore-row, Birmingham.
Chadwick, W., cotton driving band maker, New Mills, Stockport.
Chalfont Endless Telegraph Paper Co., telegraph paper makers, 40 and 41, Kirby-street, London, E.C.
Chalkley, H. T., electro-gilder and plater, 9, Princes-street, Clerkenwell, E.C.
Challis Bros., bell founders & brass manufacturers, Bushberry Works, Sidney-rd., Homerton, London, E.
Chalmers & Toss, electric bell fitters, 197, Buchanan-street, Glasgow.
Chamberlain, Enoch, brazier, 14, Abbey-street, Birmingham.
Chambers Bros., steam engine boiler composition mnfrs., Effingham Mills, Blast-la., Attercliffe, Sheffield.
Chambers, T. F. & Co., boiler composition manufacturers, 51, High-street, Hull.
Chambers, Samuel A., electric chandelier maker, 112, Constitution-hill, Birmingham.
CHANCE BROS., & CO., lighthouse engineers, 24, Finsbury-circus, E.C.; Lighthouse Works, Smethwick, Birmingham.
Chance & Malins, brass founders, Tyndall-street Works, Camden-street, Birmingham.
Chandler, Jas., mechanical engineer, 17, Cottage-grove, Mile-end-road, London, E.
Chapelside Chemical Company, manufacturing chemists, 53, Candleriggs & Chapelside, Maryhill, Glasgow.
Chaplin, A., & Co., steam engine makers, 63, Queen Victoria-street, London, E.C.
Chaplin, A., & Co., boiler makers, 60, Cranston-street, Glasgow.
Chaplin's Patent Steam Engines & Boilers, mechanical engineers, 2, Wallbrook, London, E.C.
Chaplin, Samuel Ford, india rubber manufacturer, 150, Borough High-street, London, S.E.
Chaplain, George Henry, steam packing maker, 97 & 98, Bishopsgate-street Within, London, E.C.
Chaplin, William, wire drawer, 233, Park-lane, Birmingham.
Chapman, Gavin & Co., manufacturing chemists, 143, North Wallace-street, Glasgow.
Chapman, A., mechanical engineer, Spencer-street, Rhodeswell-road, Limehouse, London, E.
Chapman, Edward, metal merchant, 34, Great St. Helen's, London, E.C.
Chapman, J. T., manufacturing chemist (photographic purposes), 168, Deansgate, Manchester.
Chapman, J., electro-plate manufacturer and dealer, 28, Almorah-road, Islington, London, N.
Chapman, J. G., mechanical engineer, 25, Austinfriars, Old Broad-street, London, E.C.
Chapman, T., electro-gilder and plater, 56, Buchanan-street, Glasgow.
Chappè de Leonval, Thomas F., mechanical engineer, 29, Stanley-gardens, Kensington, London, W.
Chappuis, P. E., reflector and shade manufacturer, 69, Fleet-street, E.C.
Chase, W. H., machine strap fastener maker, 103, Fenchurch-street, London, E.C.
Chatters, J., mechanical engineer, 93, White Lion-street, Pentonville, London, N.
Chatterton, John, lead manufacturer, Bridge-wharf, Caledonian-road, London, N.
Chattock, Richard Farmer, zinc merchant, 83, Upper Thames-street, London, E.C.
Chatwin Thomas, screw stock and die tap maker, Victoria Works, Great Tindal-street, Birmingham.
Chaundy, John Fulke, metal merchant, Norton Lees, Heeley, Norton, Sheffield.
Checkley, Thos., mining engineer, 70, Lichfield-street, Walsall.
CHEFFINS, RICHARD ALFRED, wood engraver, 9, Essex-street, Strand, London, W.C.
Chellingsworth, J. F., electro-gilder and plater, 4, Nettleton-court, Nicholl-square, London, E.C.
Chemical Society, Burlington-house, Piccadilly, London, W.
Cheshire, C. H., electro-plate manufacturer and dealer, 3, Northampton-street, Birmingham.
CHESHIRE, W. & J. R., wood engravers, 23, Holborn-viaduct, London, E.C.
Chestergate Chemical Works, chemical manufacturers, Chestergate, Stockport.
Chesterman, Josiah, brass manufacturer, 5, Eyre-street-hill, Clerkenwell-road, London, E.C.
Chesterton, J., brass founder, Britannia Works, Station-street, Walsall.
Chételat & Co., tin foil manufacturers, 3, Budge-row, London, E.C.

Digitized by Google

Chick, John, optician, 19, Gower-street, Leicester.
Chidley, R., Son & Co., oil merchants, 37, White Lion-street, Norton Folgate, London, E.
Child Brothers, rivet makers, 26, Martin's-lane, London, E.C.
Child Brothers, screw manufacturers, Falcon Works, Smethwick, Birmingham.
Child, Tobias & Co., wire drawers, Hathersage, Derbyshire.
Child, Elisha Henry, tool makers, 7B, Hockley-hill, Birmingham.
Childs, A. B. & Son, mechanical engineers, 70, Fenchurch-street, London, E.C.
Chilee, Edward, wood engraver, 39, Hampton-street, Birmingham.
Chillington Iron Company, Limited, galvanizers, Wolverhampton.
Ching, Comyn & Co., brass manufacturers, 54, Castle-street, Long-acre, London, W.C.,
Chipperfield & Messent, parchment makers and dealers, 8, Newgate-street, London, E.C.
Chipperfield, R., model maker, 26A, Sekford-street, Clerkenwell, London, E.C.
Christie Bros., pottery manufacturer, 133, St. Vincent-street, Glasgow.
Christie, George, iron wire maker, Ladywell-street, Glasgow.
Christie, J. C., electric bell manufacturer, 3, Mansell-street, Aldgate, London, E.
Christie, Wm., chronometer maker, 129, Cannon-street, London, E.C.
Christopherson, Clifford & Co., chemical merchants, 17, Great Tower-street, London, E.C.
Chubb & Son, electric lock manufacturers, 128, Queen Victoria-street, London, E.C.
Chubb, W. H., zinc worker, 349, High-street, West Bromwich.
Chuck, Lockett & Co., zinc merchants, 10, Norton Folgate, London, E.
Church, Arthur Herbert, M.A., F.C.S., analytical chemist, 79, Great Tower-street, London, E.C.
Church, Daniel & Co., brass and copper founders, Gravel-lane, London, S.E.
Churchill, Charles & Co., machine tool makers, 21, Cross-street, Finsbury, London, E.C.
Churn, J., brass founder, Bucknall Foundry, Stoke-on-Trent.
Ciceri & Co., wire workers and weavers, 4, Eyre-street-hill, Clerkenwell-road, London, E.C.
City Tube Works and Brassfoundry, brassfounders, 35, Rose-street, S.S., Glasgow.
Civil and Mechanical Engineers' Society, 7, Westminster-chambers, Victoria-street, S.W.
Clamp, William, crucible manufacturer, 35, Aston-road, Birmingham.
Clark & Sons, coppersmiths, 27, Goosedubbs, Glasgow.
Clark, A. M. & W., patent and design registration agents, 53, Chancery-lane, London, W.C.
Clark, F. A., & Son, lead merchants, Phœnix Lead Mills, Marlborough-wharf, Hammersmith, London, W.
CLARK, L., MUIRHEAD, & CO., electricians, electric transmission of power, electrical engineers, telegraph wire coverers, telegraph instrument makers, &c., &c., 23, Regency-street, Westminster, London, S.W.
Clark, Nettleships, & Bailey, manufacturing chemists, 15, Belvoir-street, Leicester.
Clark & Richardson, electroplate & nickel silver spoon & fork manufacturers, 14, Vittoria-st., Birmingham.
Clark, Robt., Ingham & Co., grease manufacturers, 101, Leadenhall-street, London, E.C.
Clark & Sons, tin merchants, Waterhouse-lane, Hull.
Clark & Standfield, mechanical engineers, 6, Westminster-chambers, London, S.W.
Clark, T. & C., & Co., pulley makers, Wolverhampton.
Clark, Wm., & Son., zinc workers, 44, John-street, Glasgow.
Clark, Wm., & Sons, coppersmiths, 100, John-street, Glasgow.
Clark, Allan, manufacturing chemist, 54, Gordan-street, Glasgow.
Clark, E., electrical engineer, 6, Westminster-chambers, Victoria-street, London, S.W.
Clark, G., draughtsman, 10, Victoria-street, Masborough, Rotherham.
Clark, John, mechanical engineer, 17, Bear-lane, Southwark, London, S.E.
Clark, John, mechanical engineer, 44, Finsbury-circus, London, E.C.
CLARK, JOHN, wire worker and weaver, 46 & 47, High-street, St. Giles', London, W.C.
Clark, Wm., coppersmith, 6, Duncan-street, Glasgow.
Clarke, A. & W. (agents for Munn & Co.), patent & design registration agents, 53, Chancery-lane London, W.C.
Clarke Bros, rope & twine manufacturers, Barnton, Northwich.
Clarke Bros., brass founders, 34, Harford-street, Birmingham.
Clarke & Dunham, lubricator manufacturers, 69, Mark-lane, London, E.C.
Clarke, J. C., & Co., steel manufacturers, 38, Carr-lane & Newcastle-street, Sheffield.
Clarke & Sutcliffe, turbine and water-wheel makers, Sophia-street, Rochdale-road, Manchester.
Clarke, Thomas, & Sons, ironfounders, Bridge Foundry, Carlton-road, Attercliffe, Sheffield.
Clarke & Timmins, brass founders, 10, Soho-square, London, W.
Clarke, Andrew, optician, 46, Rathbone-place, W., & 6, Catherine-street, Strand, London, W.C
Clarke, C., lamp lustre, &c., manufacturer, 7 & 8, Washington-street, Birmingham.
Clarke, Henry Berger, chemical merchant, 37, Great Tower-street, London, E.C.
Clarke, Hugh, metal merchant & dealer, Hockley-street, Birmingham.
Clarke, J., leather driving band maker, 16, Major-road, London, S.E.
Clarke, J. F., bell-hanging engineer, 49, Moorgate-street, London, E.C.
CLARKE, WILLIAM, electro-gilder and plater, 36, Clerkenwell-road, London, E.C.

Digitized by Google

Clarke, William, rivet manufacturer, 76, Miles-street, Sandy-lane, Birmingham.
CLAUDET, FREDERICK, assayer, 6 & 7, Coleman-street, London, E.C.
Clay Cross Co., gas-pipe makers, 130, Great Suffolk-street, S.E.
Clay, Mrs. P., zinc worker, 5, chain-lane, Newark.
CLAYDON J. & CO., electro-platers & gilders, 4, Angel-lane, Stratford, E.
Clayton, Howlett & Venables, mechan. engineers, Atlas Wks., Woodfield-rd., Harrow-rd., London, W.
Clayton & Shuttleworth, steam engine makers, 78, Lombard-street, London, E.C.
Clayton, George, chemical glass & apparatus manufact., 42, Red Lion-st., Clerkenwell, London, E.C.
Clayton, J., wire-drawer, Westgate, Cleckheaton, Yorkshire.
Clayton, Wm., chemical glass and apparatus manufacturer, 12, Bunhill-row, London, E.C.
Clayton, Wm., glass blower, 87, East-road, City-road, London, N,
Cleaver, Edward Lawrence, analytical chemist, 289A, King's-road, Chelsea, London, S.W.
Cleland & Thorburn, coppersmiths, 107 & 109, Cheapside-street, Glasgow.
Clemmens, J., electro gilder and plater, 45, Great Hampton-street, Birmingham.
Clements, E., & Co., mechanical engineers, 51, Great Russell-street, W.C.
Clements, Handley, & Co., electro gilders and platers, 19, St. John's-square, London, E.C.
Clementson Bros., earthenware manufacturers, Phœnix & Bell Works, Broad-street, Hanley, Stafford.
Clephan, W., coppersmith, 19, Lancefield-street, Glasgow.
Clerc, Léon, electrolier lamp & lustre manufacturer, 48, Commercial-street, London, E.
Clarke, Fredk. Wm., chronometer maker, 1, Royal Exchange, E.C.
Cleveland Bridge & Engineering Co., mechanical engineers, 86, Cannon-street, London, E.C.
Cliff, Joseph & Sons, telegraph insulator manuf., 2 & 4, Wharf, Gt. Northn. Goods Station, King's-cross
CLIFFORD, CHARLES, & SON, wire drawers, Rolling Mills, Fazeley-street, Birmingham; and 148, Gresham-house, Old Broad-street, London, E.C.
Clive & Co., steam packing makers, Suffolk-grove, Southwark, London, S.E.
Clive & Co., earthenware manufacturers, Well-street, Tunstall, Stoke-on-Trent.
Close & Ayre, railway signal manufacturers, Phœnix Iron Works, Fishergate.
Clugston, John, mechanical engineer, 63, Queen Victoria-street, London, E.C.
Cluther Bolt Works, bolt & screw manufacturers, Vermont-street, Glasgow.
Clyde Bottle Works Co., glass manufacturers & merchants, 50, Charles-street, St. Rollox, Glasgow.
Clyde Chemical Works, manufacturing chemists, Old Keppochhill-road, Glasgow.
Clyde Lead Works, lead pipe manufacturers, Cornwall-street, Glasgow.
Clyde Rivet Works Co., rivet makers, 115, Dundas-street, Kingston, Glasgow.
Clyde Tube Works, tube makers, 41, Oswald-street, Glasgow.
Clydesdale Rubber Co., india rubber manufacturers, 58, Gordon-street, Glasgow.
Coake, James, electric bell fitter, 9, St. Mary-at-hill, Eastcheap, London, E.C.
Coalbrookdale Co., Limited, bronzists, 43 and 44, Holborn-viaduct, and 118, Cannon-st., London, E.C.
Coaney, Edmund & Co., glass manufacturers, 82, Moor-street, Birmingham.
Coats, Joseph, consulting engineer, Forest, High Allendale.
Cobbett, W. W., leather driving band maker, 60, Queen Victoria-street, London, E.C.
Cobham & Co., pulley makers, Stevenage, Herts.
Cockburn, M., & Co., lamp post manufacturers, Gowan Bank Iron Works, Falkirk.
Cockburn, W., consulting engineer, Saltburn-by-the-Sea.
Cocker Brothers, Limited, wire drawers, Nursery-street, Sheffield.
Cocker & Sons, wire manufacturers, Hathersage, Sheffield.
Cocker, J., wire drawer, Blonk-street, Sheffield.
Cockerill, John, mechanical engineer, 10, London-street, London, E.C.
Cockle, Wm., & Co., wire workers and weavers, 139 and 140, Bermondsey-street, London, S.E.
Cochran & Co., steam engine boiler makers, Birkenhead.
Cochran, R., & Co., pottery manufacturers, 136, Glebe-street, Glasgow.
Cochrane & Co., drain-pipe manufacturers, Ormesby Iron Works, Middlesborough.
Cochrane, Grove & Co., mechanical engineers, 11, Queen Anne's-gate, London, S.W.
Cochrane, J., & Son, mechanical engineers, 4, Westminster-chambers, London, S.W.
Cochrane, A. & R., glass manufacturers and merchants, Tennant-street, Glasgow.
Cochrane, H., mechanical engineer, 58, Great Dover-street, London, S.E.
Cochrane, John, iron founder, Barrhead, Scotland.
Cockroft, W., wire drawer, Quarry Mill, Cleckheaton, Yorkshire.
Cocquerel, E., glass shade maker and dealer, 132, Commercial-street, London, E.
Coe & Smith, electric bell manufacturers, 11, Denmark-street, Soho, London, W.C.
Cogdon, Thos. Samuel, & Son, chronometer makers, 28, Budge-row, London, E.C.
Coghill, H., & Son, manufacturing chemists, Porthill, Longport, Stoke-on-Trent.
Cohen, A., engineer and machinery merchant, 45, St., John-street, London, E.C.
Cohen, A., mechanical engineer, 28, Cow-cross-street, London, E.C.
Cohen, D., chandelier manufacturer and brass finisher, 8 and 9, Chiswell-street, London, E.C., and 63, Bishop's-road, Bayswater, W.

Digitized by Google

Cohne, S., mechanical engineer, 65, Gracechurch-street, London, E.C.
Coiffier, A., electrical instrument maker, 56, Hatton-garden, London, E.C.
Cole, Granville, PH.D., F.I.C., analytical chemist, 17, Gracechurch-street, London, E.C.
Cole, J., magnetic curative appliance manufacturer, 248 and 250, Caledonian-road, London, N.
Cole, J. C., & Co., mechanical engineers, 266, Strand, London, W.C.
Cole, J. C., mechanical engineer, 7, Bell-yard, Temple Bar, London, E.C.
Cole, J. H., mining engineer, St. John's-chambers, Queen-street, Bursalem, Stafford.
Cole, T., electro-gilder and plater, 102, St. John-street, London, E.C.
Cole, William, consulting engineer, Sunnyside-house, Park-gate, Great Neston.
Coleman, G. T., electrolier, 9, Cheapside, Leicester.
Coles, Shadbolt & Baynes, drain-pipe (stoneware) manufacturers, Thornhill-wharf, 123, Caledonian-road, London, N.
Coles, H. J., mechanical engineer, 89, Sumner-street, Southwark, S.E.
Colley, Francis & Sons, india rubber and gutta percha warehouses, 86, Market-place, 8, Norfolk-street, and Meersbrook Tannery, London-road South, Heeley, Sheffield.
Collie, Robert, gas fitter, 8, Manor-street, Newcastle.
Collier, Wm., & Co., machine tool makers, 60, Queen Victoria-street, London, E.C.
Collier, George, brazier, 112, Highgate-street, Birmingham.
Collignon & Hawkins, electro-gilders and platers, St. Mark's-street, Birmingham.
Collingridge & Co., electro-gilders and platers, 60, Clerkenwell-road, London, E.C.
Collings & Co., wood engravers, 172, Strand, W.C.
Collingwood, H., electro-plate manufacturer and dealer, 64, King-Edward-road, Birmingham.
Collins, Charles, brass and copper founder, 52, Queen Victoria-street, London, E.C.
Collins, Charles, optician, 157c, Great Portland-street, London, W.
Collins, James, pulley maker, 26, Cumberland-street, Birmingham.
Collins, T. W., wood engraver, 97, Fleet-street, London, E.C.
Collis & Co., electro-plate manufacturers and dealers, 57, Cambridge-street, Birmingham.
COLLIS, J., & CO., wood engravers, 138, Fleet-street, London, E.C., and at 72, Denmark-hill, S.E.
Collison, W., & Co., tool makers, Bridge-street West, Birmingham.
Colls, George, air-tight glass case maker, 68, Brunswick-place, City-road, London, N.
Colyer, F., mechanical engineer, 18, Great George-street, London, S.W.
Coman, Thomas, wood engraver, 10, Bolt-court, Fleet-street, London, E.C.
Combe, Taylor & Nelson, screw makers, 59, 60 and 61, Hatton-garden, London, E.C.
Common, A. A., electrical engineer, 35, Queen Victoria-street, London, E.C.
Compagnie Française du Télégraphe de Paris à New York, 100 and 101, Gresham-house, London, E.C., and 24, Royal Exchange, Old Broad-street, E.C.
Compagnie Générale D'Électricité.—J. A. Berly, agent and engineer, 16, New Bridge-street, London, E.C., and 139, Cannon-street, E.C. Gramme alternating current system (proprietors of the).
COMPAGNIE GÉNÉRALE DES HOROLOGES PNEUMATIQUES DE PARIS.—Popp and Resch patent system.—The correct time distributed to any number of public and private clocks in a town, or all the clocks periodically synchronized by means of the PNEUMATIC SYSTEM, as in use in the public thoroughfares and private houses of Paris. All the working parts of the machinery and apparatus at the Central and Distributing Stations automatically-electrically controlled. A yearly rental charged at a very moderate figure. Agent for Great Britain, J. A. BERLY, C.E., A.S.T.E. and E., 16, New Bridge-street, London, E.C.
Company of Cornish Tin Streamers, Limited (The), tin merchants, 32, Wallbrook, London, E.C.
Compton, Henry, & Co., tinfoil manufacturers, 148, Fenchurch-street, London, E.C.
Connell, Hugh, chronometer maker, 29, Bridge-street, Glasgow.
Connell, Wm. George, chronometer maker, 83, Cheapside, London, E.C.
Conolly, Henry, lead merchant, 53 and 55, Hampstead-road, London, N.W.
CONSOLIDATED TELEPHONE CONSTRUCTION AND MAINTENANCE CO., LIMITED, 6, Lombard-street, London, E.C.
CONTI, A. E., electrical instrument and apparatus maker, 26A, Smith-st., Northampton-sq., London, E.C.
Continental Caoutchouc, India Rubber and Gutta Percha Co., 63, Finsbury-pavement, London, E.C.
Contractors' Engineering & Financial Agency, mechanical engineers, 19, Buckingham-st., Strand, London, W.C.
Conway, Morris & Bennett, mechanical engineers, 13, Pocock-street, Blackfriars-road, London, S.E.
Conway, Joseph, optician, 65, Rotherfield-street, Islington, London, N.
Cook Bros., alkali manufacturers, 44, Dean-street, Newcastle.
Cook, Edward, & Co., melters, East London Soap Works, Bow, London, E.
Cook, Fontaine, & Co., melters, 62, Fanshaw-street, Hoxton, London, N.
Cook, R., & Co., wire drawers, 11, St. James'-street, Sheffield.
Cook, W., & Co., galvanizers and galvanized iron wire manufacturers, Wire Mills and Galvanizing Works, Bank-quay, Warrington.
Cook, Wm., & Co., mechanical engineers, 118, Railway-arch, Salamanca-street, Vauxhall, London, S.E.

Digitized by Google

Cook, W. A., & Co., wire drawers, 32, Oxford-street, Normanton.
Cook, George Edwin, lead merchant, 281, City-road, London, E.C.
Cook, W., C.E., patent agent, 43, Southampton-buildings, London, W.C.
Cooke, Conrad W., consulting electrical engineer, 5, Westminster-chambers, Victoria-street, London, S.W.
Cooke, Joseph, & Co., electrolier lamp manufacturers, Birmingham.
Cooke, Wm., & Co., galvanized iron wire manufacturers, Tinsley Steel, Iron, and Wire Works, Sheffield.
Cooke, Jas., metal merchant, 24, Oak-street, Heeley, Sheffield.
Cookes, & Swinnerton, wire drawers, 16, Rood-lane, London, E.C.
Cooksey, J., & Son, mining engineers, 20, Paradise-street, West Bromwich.
Cookson & Co., lead manufacturers, Queen-street, Newcastle-on-Tyne.
Cookson & Co., lead smelters, Royal Insurance-buildings, Queen-street, Newcastle-on-Tyne.
Cookson & Co., antimony refiners, Willington-quay, Newcastle.
Cookson & Co., lead manufacturers, 26, Philpot-lane, London, E.C.
Cookson, J., cotton waste merchant, 21, New Cannon-street, Manchester.
Cookson, William, draughtsman, 8, Rose-street, Birkenhead.
Coombs, Wm. C., hinge maker, 16, Myddelton-street, London, E.C.
Cooper Bros., electro-plate manufacturers and dealers, Don Plate Works, Bridge-street, Sheffield.
Cooper & Co., parchment makers, 5, 6 & 7, Shoe-lane, London, E.C.
Cooper & Co., felt manufacturers, Felt Works, Little King-street, Birmingham.
Cooper & Dethick, earthenware manufacturers, Viaduct Works, Caroline-street, Longton.
Cooper, Edward, & Co., steel manufacturers, 29, Norfolk-lane, Sheffield.
Cooper & Farrar, drain pipe (stoneware) manufacturers, 47 & 48, King William-street, London, E.C.
Cooper, Henry, & Co., rivet makers, 9, Fenchurch-street, London, E.C.
Cooper, Joseph, & Son, tool makers, Lionel-street, Birmingham.
Cooper & Smith, manufacturing chemists, Catherine-street, Lichfield-road, Birmingham.
Cooper, Wm., & Son, electrolier lamp and lustre manufacturers, 65, St. Mary Axe, London, E.C.
Cooper & Son, manufacturing chemists, 1A, Charles-street, Leicester.
Cooper & Moreton, earthenware manufacturers, Pyenett-street, Shelton, Hanley, Stafford.
Cooper, Archibald Livingstone, india rubber manufacturer, 9, London-street, London, E.C.
Cooper, A. T., metal manufacturer, 21, Station-street, Walsall.
Cooper & Co., electro-gilders and platers, 10, Northampton-street, Birmingham.
COOPER, CHARLES FRIEND, electrician, 76, Little Britain, London, E.C.
Cooper, Chas. Thomas, mathematical instrument maker, 86, Great Dover-street, London, S.E.
Cooper, G. & Sons, bolt and nut manufacturers, Effingham Nut and Bolt Works, Effingham-rd., Sheffield.
Cooper, George, drain pipe manufacturer, 195 and 197, Lawley-street, Birmingham.
Cooper, George, brazier, 88, Wicker-street, Sheffield.
Cooper, George Frederick, optician, 24, John-street, Spa-fields, Exmouth-street, W.C.
Cooper, Jas., wood engraver, 188, Strand, London, W.C.
Cooper, John, electric bell fitter, 19, Bedford-street, Leicester.
Cooper, W., rolling mills and rolled metal manufacturer (Britannia metal), 293, Bradford-st., B'ham.
Cooper, W., wire drawer, 293, Bradford-street, Birmingham.
Cooper, Wm. John, analytical chemist, 7, Westminster-chambers, London, S.W.
Cope & Collinson, brass and copper founders, 53, Berwick-street, London, W.
Cope, Charles, consulting engineer, Portland-house, Odd Rode, Lawton.
Cope, J., mining engineer, 3, Copeland-st., Stoke-on-Trent.
Cope, Wm. Henry, mechanical engineer, 10, Bostock-street, Old Gravel-lane, London, E.
Copeland & Co., oil merchants, 4, Mitre-street, Aldgate, London, E.C.
Copeland, J. & Co., steam engine boiler makers, 27, Martin's-lane, London, E.C.
Copeland, W. T., & Sons, earthenware manufacturers, High-street, Stoke-on-Trent.
Corbett, Thomas, & Son, mathematical instrument makers, 74, Spencer-street, Birmingham.
Corbett, Wm., & Co., metal merchants and dealers, 128 & 130, Edmund-street, Birmingham.
Corbitt, William & Co., Limited (Edward Bagaley Williams, managing director) ironfounders, Masbro' Works, Masbro', Rotherham.
Corcoran, Witt & Co., leather driving band makers, 30, Mark-lane, London, E.C.
Corcoran, Bryan, leather driving band makers, 31, Mark-lane, London, E.C.
Cording, John Charles, & Co., india rubber manufacturers, 40, Ludgate.hill, London, E.C.
Cordrey, Edward, oil merchant, 203, Long-lane, London, S.E.
Corker, John & Richard, iron founders, Foundry-street, Midland-road, Masbro', Rotherham.
Corn, W. & E., earthenware manufacturers, Navigation-road, Burslem, Stafford.
Cornforth Bros., telegraph wire manufacturers, 155, Dartmouth-street, Birmingham.
Cornut, R., Southampton-street, Strand, London, W.C.
Corry, Edward, copper merchant, 9, New Broad-street, London, E.C.
Cort, R., & Sons, mechanical engineers, 21, Lower Bland-street, London, S.E.
Coste & Co., chemical merchants, 19 & 20, Water-lane, London, E.C.
Coster, George Alex., coppersmith and brazier, 21, Old Gravel-lane, High-street, Wapping, E.

Digitized by Google

Cottam & Co., hinge makers, 2, Winsley-street, London, W.
Cotterell, Wm., glass manufacturer and merchant, 9, 15, Paisley-road, Glasgow.
Cotterill, F. W., bolt and nut manufacturer, 97, Cannon-street, London, E.C.
Cotton & Johnson, machine tool makers, 21 to 23, Grafton-st., Soho, London, W.C.
Cotton, E., earthenware manufacturer, Lichfield-street Works, Hanley, Stafford.
Coulby, W., electric bell fitter, 12 and 14, Greyhound-street, Nottingham.
Coulson (Jukes), Stokes & Co. (Frank Hiller, manager), file manufacturers, West-street-lane, and 3, Carver-street, Sheffield..
Coupe, Addie & Hall, wire drawers, British Steel and Iron Wire Works, Tinsley, Sheffield.
Coupe, D. H., jun., & Co., telegraph wire manufacturers, Tinsley, Sheffield.
Coupe, R. J., & E., steam engine makers, Worseley Mesnes Iron Works, Wigan.
Couper, James & Sons, glass manufacturers and merchants, City Flint Glass Works, Kyle-st., Glasgow.
COURTENAY & TRULL, gelatinized fibre manufacturers, 17, Dey-street, New York.
Courtney, Wm. & Co., brass founders, 1, Court, Hicks-square, Birmingham.
Cousland, A., & Co., wire drawers, Glasgow Wire Works, 37, Hunter-street, Glasgow.
Cousland, A., & Son, wire workers and wire cloth manufacturers, 3, Mitchell-st., Glasgow.
Cove, Wm., electric bell fitter, 21, Skinner-street, St. John's-street-road, Clerkenwell, London, E.C.
Covington, John Charles, tool maker, 7½, Jennen's-row, Birmingham.
Cow (G. B.), Hill & Co., india rubber manufacturers and dealers, 46, Cheapside, London, E.C.
Cowan & Laird, manufacturing chemists, 41, Candleriggs, Glasgow, and 231, Govan-road, Govan.
Cowan & Co., oil merchants, 28 & 29, London-wall, London, E.C.
Cowdy, Jeremiah, & Co., cotton waste merchants, 40A, Queen-street, Cannon-street, London, E.C.
Cowen, Joshua, & Co., drain pipe manufacturers, Blaydonbarn, Blaydon.
Cowlairs Chemical Co., manufacturing chemists, Cowlairs, Glasgow.
Cowland, George, mathematical instrument maker, 30, Hosier-lane W., Smithfield, London, E.C.
Cownley, Alf. John, F.I.C., F.C.S., analytical chemist, 13, Fenchurch-avenue, London, E.C
Cox Bros., & Holland, wire drawer, Percy-road, Greet, Birmingham.
Cox Bros., & Co., lead pipe manufacturers, Butcher-street, Nottingham.
Cox, Daniel, brass casters, 47, Leopold-street, Birmingham.
Cox, F. J., optician, 26, Ludgate-hill, London, E.C.
Cox, Henry, screw manufacturer, 57 and 58, Charles Henry-street, Birmingham.
COX, JAMES ABRAHAM, glass shade maker, 44, Old Compton-street, London, W.
Cox, Stephen, refiner, Gibb-street, Deritend, Birmingham.
Cox, Walter Charles, electro-plater and gilder, 1, Caroline-street, Birmingham.
Cox, Wm., glass shade maker, 44 to 48, Crown-street, Soho, London, W.C.
Coxeter, J., & Son, medical battery manufacturers, galvanists and electricians. Only prize medal awarded specially for medical electricity, Paris, 1881; and Crystal Palace, Sydenham, 1882; 23 and 24, Grafton-street East, Tottenham-court-road, London, W.C.
Coxhead, F. C., mechanical engineer, 27, Leadenhall-street, London, E.C.
Coyen, Carmouche, mathematical instrument maker, 56, Hatton-garden, London, E.C.
Coyne, John, mathematical instrument maker, 80½, Geach-street, Summer-lane, Birmingham.
Crabb & Co., parchment makers, 81, Knightrider-street, London, E.C.
Crabtree, T., wire drawer, Barrack-street, Sheepscar, Leeds.
Craggs, Thomas, coppersmith, Park-lane, Gateshead.
Craig & Rose, cotton waste merchants, 75, Southwark-street, London, S.E.
Craig & Rose, lead manufacturers, 110, Wellington-street, Glasgow.
Craig, James, glass manufacturer and merchant, 91 & 93, King-street, City, Glasgow.
Crompton, T., & Co., electrical instrument makers, 251, High Holborn, W.C.
Crane, P. Moir, & Co., oil merchants, 131, Fenchurch-street, London, E.C.
Crapper, Thomas, & Co., lead merchants, 50 & 52, Marlborough-road, Chelsea, S.W.
Crawford & Bain, brass founders, 79, Finnieston-street, Glasgow.
Crawford Brothers, metal merchants, Printing-court-buildings, Alkenside-hill, Newcastle.
Crawford, J. & Ebenezer, lamp post manufacturers, Eagle Foundry, Port Dundas, Glasgow.
Crawford & Balcarres, Earl of, electrician, 47, Brook-street, London, W.
Crawford, T., electro gilder and plater, 296, Argyle-street, Glasgow.
Crawford, William, coppersmith, 46, Muse-lane, Glasgow.
Crawley, Parsons, & Co., metal merchants and dealers, 130, Colmore-row, Birmingham.
Crease, J., & Son, oil merchants, 29 & 30, Cow Cross-street, London, E.C.
Creasy, R. G., telegraphic codifier, 27, Clement's-lane, London, E.C
Cressall, William, brass and copper founder, 45, Bedford-row, W.C.
Cresswell, Alfred Neve, metal merchant, Imperial-chambers B., Colmore-row, Birmingham.
Creswick & Co., electro plate manufacturers and dealers, 17, Craven-street, Strand, London, W.C.
Crewdson, Hardy & Co., gas pipe makers, Yorkshire Tube Works, Middlesbro'.
Crickmer, R. J., mechanical engineer, 8, Mawbey-road, Old Kent-road, London, S.E.
Cripps, Joseph, analytical chemist, 27, New Broad-street, London, E.C.

Digitized by Google

Crisp, William Baker, chronometer maker, 174, St. John-street-road, London, E.C.
Croft, T. & C., electric bell fitters, 32, Denmark-road, Kilburn-park, London, N.W.
Croggon & Co., zinc merchants, 42, Upper Thames-street, London, E.C.; and Liverpool and Glasgow.
Crombie, John, model maker, 38, Rodney-road, Walworth, London, S.E.
CROMPTON & CO., R.E., electric light engineers, Mansion House-buildings, 4, Queen Victoria-street, London, E.C.
Crompton Winfield (The) Electric Light Association, Cambridge-street Works, Birmingham, and 49, Farringdon-street, E.C.
Crosfield, Albert J., & Co., grease manufacturers, Acre Wharf, Bow Bridge, London, E.
Crosher, William, & Co., screw makers, Portman-street, Kinning-park, Glasgow.
Cross, Alexander, & Sons, manufacturing chemists, 19, Hope-street, Glasgow.
Cross, Charles Samuel, analytical chemist, 606, Old Ford-road, Bow, London, E.
Crossby, Ingham, & Co., consulting engineers, New Exchange-buildings, Middlesbro'.
Crossley Brothers, Limited, gas engine makers, 24, Poultry, London, E.C.
Crossley & Co., metal merchants, 53, Gracechurch-street, London, E.C.
Crossley, John & Co., machinists, Halifax.
Crossley Telephone Company, 18, Austinfriars, London, E.C.
Crossley, George, pulley maker, Albion Machine Works, Cleckheaton, Yorkshire.
Crouch & Jay, iron tank manufacturers, Regent-wharf, Maroon-street, Limehouse, London, E.
Crouch, Henry, optician, 66, Barbican, London, E.C.
Crouch, H., electro gilder and plater, 10, Macclesfield-street, Soho, London, W.
Croudace, John, consulting engineer, Choppington, Morpeth.
Crown Galvanizing Company, (C. A. Wall, proprietor), Milk-street, Birmingham.
Crown Point Works, boiler makers, Crown Point-road, Glasgow.
Crown Pottery, pottery manufacturers, 47, Garngad-hill, Glasgow.
Crown Zinc Company, spelter manufacturers, Swansea.
Crother, George, designer, 112, Newhall-street, Birmingham.
Croydon, John, brass and copper founder, 20, Cyrus-street, Goswell-road, London, E.C.
CRUICKSHANK, RICHARD, manufacturing chemist, 121 & 123, Camden-street, Birmingham.
Crumlin Viaduct Works Company, Limited, railway signal manufacturers, Crumlin, Newport.
Crutchley, W., wire drawer, 8, Barr-street, Birmingham.
Cryer, Thomas, mechanical engineer, 24A, Jamaica-road, London, S.E.
CRYSTAL PORCELAIN POTTERY COMPANY, LIMITED, electric specialities makers, 23, St. Swithin's-lane, London, E.C. Works: Cobridge, Stoke-on-Trent, Telegraphic and electrical ware.
Cuba Submarine Telegraph Company, Limited, 61, Old Broad-street, London, E.C.
Cullen, John, glass manufacturer and merchant, 7, Ranfurly-place, Paisley-road, Glasgow.
Culver, George, optician, 90 & 100, White Lion-street, London, N.
Cumming, Alexander, oil merchant, 1, Lombard-court, London, E.C.
Cund Brothers, designers, Paternoster-row, Moor-street, Birmingham.
Cunningham, John, & Co., glass manufacturers and merchants, 90, Kenning-street, Kingston, Glasgow.
Crook, George, parchment maker and dealer, 78, Newgate-street, London, E.C.
Currie, Thomson, & Co., india rubber manufacturers, 27, Ludgate-hill, London, E.C.
Purtis, John S., model maker, 13, Thornton-lane, Leicester.
Cuthbert, Wm. & George, brass and copper founders, 32, Back Church-lane, London, E.
Cutter, Samuel, & Sons, steam engine boiler makers, 192, West Ferry-road, London, E.
Cutler, S., glass manufacturer, 6, Horseley-fields, Wolverhampton.
Cuttell, Richard William, tool maker, 240, Aston-road, Birmingham.
CUTTING, R. C., & CO., lightning conductor manufacturers, electric bell and Telephone fitters, Wardrobe Chambers, Queen Victoria-street, London, E.C., and Deansgate, Manchester.
Cuttriss, electro motor maker, 83, New Briggate, Leeds.
Cutts, I. P., Sutton & Son, mathematical instrument makers, 51 to 57, Division-street, and 66, High-street, Sheffield.

D.

Dade, D. H., & Co., anti-fouling boiler composition makers, New-church-st., Jamaica-rd., London, S.E
Daffern, W., electro plate manufacturer and dealer, 61, Graham-street, Birmingham.
Daglish, Robert, gasfitter, Bridge-street, Newcastle.
Dahm, George, zinc merchant, 9, Mincing-lane, London, E.C.
DALE, H. & E. J., manufacturing electricians, electric alarm, bells, lamps (arc and incandescent) and telephone apparatus manufacturers, 4, Little Britain, London, E.C.
DALE, R. F., & Co., steam engine makers, oil merchants, brass and copper founders, Bear-lane, Southwark, London, S.E.

Digitized by Google

Dale & Plant, oil merchants, 81, Smallbrook-street, Birmingham.
Dale, J., mechanical engineer, 195, Upper Thames-street, London, E.C.
Dale, Josiah, mechanical engineer, Davenham, Northwich.
Dallmeyer, John Hy., optician, 19, Bloomsbury-street, London, W.C.
Dando, Thos., chronometer maker, 123, Shepherdess-walk, London, N.
Daniel, F. A., electro-gilder and plater, 33, Percy-street, London, W.
Daniell, S. A., screw stock and die tap maker, Lion Works, Edward-street, Birmingham.
Danks, H. & T., iron tube makers, Netherton, near Dudley, Birmingham.
Darby & Tackley, glass shade makers and dealers, 30 & 32, Goswell-road, London, E.C.
Darby, J., electro gilder and plater, 109, Great Hampton-row, Birmingham.
Darby, William Edward, electre plater and gilder, 109 & 110, Hampton-row, Birmingham.
Darbyshire, Mrs. Ann, optician, Pool Works, Burgess-st., & 20, Division-st., Sheffield.
Darbyshire, Wm., optician, 34, Carver-street, Sheffield.
Darling & Taylor, tube brush makers, 217, Argyle-street, Glasgow.
Darling, Alex. Jas., brass and copper founder, 23, Laurence Pountney-lane, London, E.C.
Darling, Henry, electro plater, 55, Arundel-street, Sheffield.
Darlington, J., electric measuring instrument maker, 1, Coleman-st.-bldgs., Moorgate-st., London, E.C. Spark scale to shew the passage of spark across five breaks in the circuit, spark scale consisting of five discs, each disc having ten breaks.
Darlow & Co., magnetic curative appliance manufacturers, 443, Strand, London, W.C.
Darwin & Co., ironfounders, Queen's Foundry, 108, Queen-street, Sheffield.
Darwin, J. M., electrician, Brook-street, Longton, Staffordshire.
Darton, F. & Co., electrical instrument makers, 45, St. John's-street, London, E.C.
Dasnières, C., chemical merchant, 16, Philpot-lane, London, E.C.
Danbuz & Co., tin merchants, 40 & 41, Upper Thames-street, London, E.C.
Daunt, Wm. H., metal merchant, 11, Queen Victoria-street, London, E.C.
Davenhill, R. S., mining engineer, Blakenhall Heath, Bloxwich, Walsall.
Davenport, W. & Co., earthenware manufacturers, Longport, Burslem, Staffordshire.
Davey & Co., mechanical engineers, 12, South-place, Finsbury, London, E.C.
Davey & Moore, drain pipe (stoneware) manufacturers, Albion-street, Caledonian-road, N.
DAVEY, PAXMAN & CO., high speed engine makers, 139, Queen Victoria-street, E.C., & Standard Iron Works, Colchester. (For electric light purposes).
Davey, H. M., mechanical engineer, 135, Salisbury-square, London, E.C.
Davey, Wm., grease manufacturer, 101, Leadenhall-street, London, E.C.
Davidson, Alex., optician, 77, London-street, Glasgow.
Davidson, D., boiler maker, 19, Union-place, North-street, Glasgow.
Davidson, James S., iron founder, The Ginns Engine Works, Whitehaven.
Davidson, Thos., jun. & Co., pottery manufacturers, 33-41, Garngad-hill, Glasgow.
Davies Bros. & Co., iron tank manufacturers, Crown Works, Wolverhampton.
Davies Bros. & Co., galvanisers, 110, Cannon-street, London, E.C.
Davies & Co., reflector and shade manufacturers, 34, Warwick-lane, Newgate-street, London, E.C.
Davies, Clement & Co., electric lamp manufacturers, 123 to 131, Bradford-street, Birmingham.
Davies, J., & Co., lightning conductor manufacturers, 51, Tyrrell-street, Bradford.
Davies, Wm., Grimoult & Co., metal merchants, 57, Gracechurch-street, London, E.C.
Davies, Benj., consulting engineer, 12, Union-walk, Chester.
Davies, E., galvanizer and galvanized iron wire manufacturer, Galvanized Iron Works, Cannock-road, Wolverhampton.
DAVIES, HENRY G., electrotyper, 4, New Bridge-street, London, E.C.
Davis, H. & C., & Co., electric bell fitter, 286, 288, 290, Camberwell-road, London, S.E.
Davis, J., & Co., telegraph engineers and contractors, 51, Tyrrell-street, Bradford.
Davis, J., & Son, telegraph cable-making machine manufacturers and electric light contractors, All Saints' Works, Derby.
Davis, Moses & Co., electrolier, lamp and lustre manufacturers, 27, Wellclose-square, London, E.
Davis & Primrose, machine tool makers, Etna Works, Leith.
Davis & Timmins, manufacturers of electric light fittings, telegraph wire and screw makers, Bowling-green-lane, London, E.C.
Davis, B., electric bell fitter, 28a, Church-street, Longton.
Davis, Chas. John, electrolier, lamp and lustre manufacturer, 128, Newington-causeway, London, S.E.
Davis, E., mining engineer, Birmingham-street, Dudley.
Davis, Fredk, gas pipe maker, 80 & 81, Palace-chambers, Bridge-street, London, S.W.
Davis, G. F., electric bell manufacturer, 185, Vauxhall-bridge-road, London, S.E.
Davis, J., lead merchant, 381, High-street, West Bromwich.
Davis, J., electric bell fitter, 6, Bedford-street, Leamington.
Davis, J. H., earthenware manufacturer, Trent Pottery, Kirkham-street, Hanley, Staffordshire.
Davis, Joseph Mayers, electro plater and gilder, Ruby-buildings, Frederick-street, Birmingham.

Digitized by Google

Davis, S., mica merchant, 104, Ladbroke-grove, Notting-hill, London, W.
DAVIS, T., electrical engineer, Palace-chambers, 9, Bridge-street, Westminster, London, S.W.
Davis, Wm. G., mechanical engineer, 2, Brabant-court, London, E.C.
Davison, Alex., mathematical instrument maker, 77, London-street, Glasgow.
Davy Bros., Limited, steam engine boiler makers, Park Iron Works & Rolling Mills, Foley-st., Sheffield
Davy, Humphrey & Son, manufacturing chemists, Masbro'-street, Masbro', Rotherham.
Dawans, A. & Orban, H., wire manufacturers, 9, New Broad-street, London, E.C.
Dawbarn, W., & Co., lead smelters, 9, Temple, Dale-street, Liverpool.
Dawson, A. & Wm., electrotypers, 23, Farringdon-street, London, E.C.
Dawson & Nunneley, iron tank makers, Black Bull-street, Hunslet, Leeds.
DAWSON, WILLIAM, & SONS, PRINTERS & PUBLISHERS, OF BERLY'S ELECTRICAL DIRECTORY, 121, CANNON STREET, E.C., and 148 & 149, UPPER THAMES STREET, LONDON, E.C.
Dawson, J., earthenware manufacturer, Stafford-street, Longton, Stafford.
Dawson, Joseph, boiler composition maker, 229, Belgrave-gate, Leicester.
Day & Collins, wood engravers, 29, 50, 52, Fann-street, London, E.C.
DAY, DAVIS & HUNT, patents, trade marks, and registration agents, 321, High Holborn, London, W.C.
Day, (Francis) & Faithfull, spelter manufacturers, Guildford Paper Works, Guildford-street, York-road, Lambeth, London, S.E.
Day & Sons, boiler compostion makers, Brigg.
Day, C., jun., wire drawer, 8, Nelson-terrace, City-road, London, N.
Day, Edward, assayer, 28, Warston-lane, Birmingham.
Day, George, brass and copper founder, 31, Liverpool-road, London, N.
Day, J. B., mechanical engineer, 119, St. Leonard-street, Bromley, London, E.
Day, William, charcoal maker and dealer, 51, Crown-street, Soho, W.C.
Deakin, Parker & Co., steam engine makers, Sandon-street, Salford, Manchester.
Deakin, Reuss & Co., steel manufacturers, Tiger Works, Green-lane, Sheffield.
Dean, J. & Co., manufacturing chemist, Brickhouse-lane, Great Bridge, West Bromwich.
Dean, Smith & Grace, machine strap makers, 33, Cornhill, London, E.C.
Dean, T., telegraph cable machine manufacturers, East Surrey Foundry, Pitlake, Croydon.
Dean, Alfred, glass blower, 8, Cross-street, Hatton-garden, London, E.C.
Deane & Co., electro plate manufacturers and dealers, 46, King William-street, London, E.C.
Dearman, George, electro plater, 64, Bath-street; Works, Court 2, Headford-street, Sheffield.
Deas, John, glass shade maker, 19, Crown-street, Soho, London, W.C.
De Berenger & Co., parchment makers and dealers, 72, Finsbury Pavement, London, E.C.
Debnam, Wm., & Co., model makers, 11A, Northampton-street, Clerkenwell, London, E.C.
Dee Oil Co., oil merchants, 38, Leadenhall-street, London, E.C.
DEFRIES, J., & SONS, makers of electric light apparatus, ELECTROLIERS, reflectors, shades, globes, air-tight glass cases, POROUS CELLS, &c., also electric light contractors, and electric light fitting manufacturers and fitters, 147, Houndsditch, and 1, Gravel-lane, London, E.
Delano, W. H., mechanical engineer, 11, Finsbury-circus, London, E.C.
Deleuse, Ernest Joseph, oil merchant, 16, Water-lane, Great Tower-street, London, E.C.
Dell, Wm. Rawboun, & Son, wire workers and weavers, 26, Mark-lane, London, E.C.
Dellagana & Co., electrotypers, 48, Fetter-lane, London, E.C.
Delolme, Henry, chronometer maker, 48, Rathbone-place, Oxford-street, London, W.
De Luca, Guiseppa Vincenzo, india rubber manufacturer and dealer, 6 & 7, Long-lane, Aldersgate-street, London, E.C.
Dempster, Moore & Co., steam engine indicator, vacuum and hydraulic gauge makers, 49, Robertson-street, Glasgow.
De Negri, Constantine, model maker, 8, Stamford-street, Blackfriars-road, London, S.E.
Denpis Brothers, & Co., metal merchants, 24, Martin's-lane, London, E.C.
Dennis, T. H. P. & Co., valve makers, 4, Queen Victoria-street, London, E.C.
Dennis, W. F., & Co., wire drawers, 101, Leadenhall-street, London, E.C.
Denny, Robert, electric bell fitter, 35, Oxford-street, Glasgow.
Dent, E., & Co., watches (non-magnetizable) makers, 61, Strand, London, W.C.
Dent & Hellyer, lead merchants, 21, Newcastle-street, Strand, London, W.C.
Dent, E., copper merchant, Kaye-street, Heckmondwike, Yorks.
Dent, M. F., chronometer maker, 33 & 34, Cockspur-street, Charing Cross, London, S.W.
Dentith, Joseph Mayer, oil merchant, 24, Crosby Hall-chambers, Bishopsgate-street Within, London, E.C.
Denton & Jutsum, oil refiners, 9, New Broad-street, London, E.C.
Denton, G., jun., glass merchant, 16, Frederick-street, Rotherham.
Dequire, Edward, glass shade maker, 5, Steward-street, Spitalfields, London, E.
De Ritter & Batterson, mechanical engineers, 10, Medland-street, Ratcliff, London, E.
De Ritter, G. S., engineer, Three Colt-street, Limehouse, London, E.
Derrin, D. & A., & Co., mechanical engineers, 60, Park-street, Southwark, London, S.E.

Digitized by Google

Derrington & Sons, drain pipe manufacturers, Dartmouth-street, and Henage-street, Birmingham.
Derry, F., electro plate manufacturer and dealer, 31, Upper Hockley-street, Vyse-street, Birmingham.
Derwent Lead Mining Company, lead smelters, Ramshaw, Hunstanworth.
Desbois, Joseph, wood engravers, 9, Essex-street, Strand, London, W.C.
DESMOUTIS, H & F., LE BRUN & CO., platinum refiners, 8, Southampton-st., Strand, London, W.C. Metal Merchants.
Devaux, C., & Co., zinc merchants, 62, King William-street, London, E.C.
Deville & Co., lighthouse engineers, 23, New-street-square, New-street, Shoe-lane, London, E.C.
Dewrance, J., & Co., engine and boiler fitting manufacturers, 158, Great Dover-street, London, S.E.
Dewhurst, Samuel, & Co., Limited, tracing cloth and tracing paper manufacturers, 21, Dickerson-street, Salford, Manchester; and 8, Snow-hill, London, E.C.
Deykin & Sons, electro platers and gilders, 97, Cheapside, London, E.C.
D'Humy, P. R. F., electric light engineer, manufacturer of arc and incandescent lamps, carbons, glass globes and electroliers (represented by Marsh & R. J. Smith, 18, New Bridge-st., London, E C.), 21, Litchfield-st., Soho, London, W.
Dibley, Geo., & Son, metal merchants, 11, Queen Victoria-street, London, E.C.
Dick, Alex., & Co., wire workers and wire cloth manufacturers, 105, Stockwell-street, Glasgow.
Dick, Wm. Bruce, & Co., oil merchants, 101, Leadenhall-street, London, E.C.
Dickinson, Arthur J., grease manufacturer, Surrey Canal, Deptford, London, S.E.
Dickson & Co., gutta percha depôts, 33 to 35, Lowgate, Hull.
Dickson & Head, glass benders, 79, St. George-street, East Smithfield, London, E.
Dickson, John Robert, brass and copper founder, 66, Plumbers'-row, Whitechapel, London, E.
Dickson, Wm., lead manufacturer, 67, Garngad-road, Glasgow.
Didier, A., medical battery manufacturer, galvanist and electrician, 10, Berkeley-gardens, Kensington, London, W.
Dietz & Co., electrolier, lamp and lustre manufacturers, St. Paul's-buildings, Carter-lane, Cannon-st., London, E.C.
Dilcock, T., wood engraver, 14, Court, Carver-street, Sheffield.
Di Luggo, Dennis & Co., oil merchants, 45, Eastcheap, London, E.C.
Dillwyn & Co., spelter manufacturers, Cambrian-place, Swansea.
Dimmack, M., metal merchant, Wolverhampton-street, Bilston, Stafford.
Dimmock, J. & C., earthenware manufacturers, Stafford-street, Hanley, Stafford.
Dingle, Wm. H., electrician, 48, Hindon-street, Pimlico, London, S.W.
Dinning, J., lead smelter, Langley, Haydon-bridge.
Direct Spanish Telegraph Co., Limited, Leadenhall-buildings, Leadenhall-street, London, E.C.
Direct United States Cable Co., Limited, General offices, 52, Old Broad-street, London, E.C. Stations: head office, 34, Throgmorton-street, E.C.; branch offices, South Sea-house, Threadneedle-st., E.C.; 9, East India-avenue, Leadenhall-street, E.C.; 30, Commercial sale-rooms, Mincing-lane, E.C.
District Iron and Steel Company, iron manufacturers, Brasshouse-lane & Excelsior Works, Grove-lane, Smethwick, Birmingham.
Dix, H. & A., wood engravers, 26, Poppin's-court, Fleet-street, London, E.C.
Dix, George W., cotton waste merchant, 10, Crosby Hall-chambers, London, E.C.
Dixcee, Thomas, mechanical engineer, Crucifix-lane, London, S.E.
Dixey, Chas. W., & Son, opticians, 3, New Bond-street, London, W.
Dixey, Wm., & Son, opticians, 552, Oxford-street, London, W.
Dixon, Chas., & Son, steel manufacturers, 10, Norfolk-street, Sheffield.
Dixon & Brooks, steam engine makers, 7, Catherine-court, Seething-lane, London, E.C.
Dixon, Corbitt & Spencer, lightning conductor manufacturers, 26, Commercial-road East, London, E.
Dixon, I., & Co., iron telegraph pole manufacturers, Speakland-street, Liverpool.
Dixon, J., & Sons, electro-plate manufacturers and dealers, 37, Ludgate-hill, London, E.C.
Dixon, S., & Son, lightning conductor manufacturers, 49, Swinegate, Leeds.
Dixon, T., & Co., telegraph wire manufacturers, Windsor Iron Works, Speakland-street, Liverpool.
Dixon, Isaac, galvanizer, 62, Howard-street, Glasgow.
Dixon, Peter W., electro-plater, 75, Buchanan-street, Glasgow.
Dixon, William, steel manufacturer, Park View Works, Gwlerton, Sheffield.
Dobb, J. T., manganese merchant, 68, West Bar-street, Sheffield.
Dobbs Brothers, brass founders, Dudley-road, Wolverhampton.
Dobbie, Alex., chemical, mathematical & philosophical instrument maker, 24 & 25, Clyde-pl., Glasgow.
Dobney, T., electric bell fitter, Leicester-street, Melton Mowbray.
Dobson, H., electro-gilder and plater, 27, King-street, Soho, London, W.
Dobson, H. T., wire worker and weaver, 52, 55, 56, Borough-road, London, S.E.
Dobson, J. W., brassfounder, Baker-street, Hull.
Dock Engine and Boiler Works, boiler makers, 27, South Kinning-place, Glasgow.
Dockree, Saml., screw maker, 48, Clerkenwell-close, London, E.C.
Dockrie, Edw., screw maker, 16, Gee-street, Goswell-road, London, E.C.

Digitized by Google

Docwra, Robt., tube brush manufacturer, 48, Brooksby-street, Liverpool-road, London, N.
Dodds Bros., & Co., copper merchants, Victoria-chambers, Close, Newcastle-on-Tyne.
Dodsworth, C., consulting engineer, 47, Elswick-row, Newcastle.
Dolge, Alfred, felt maker, 132, Queen Victoria-street, London, E.C.
Dollond & Co., opticians, 1, Ludgate-hill, London, E.C.
Domeier & Co., oil merchants, 3, Botolph-lane, London, E.C.
Donald, John, & Son, bolt and screw makers, 42, Cadogan-street, Glasgow.
Donkin, B., & Co., valve makers, Southwark Park-road, London, S.E.
Donkin & Vecqueray, electric engineers, 14, Tabernacle-walk, London, E.C.
Dore, John & Co., coppersmiths and braziers, 36, High-street, Bromley, E.
Dorrell, Lambert, brass and copper founder, 230, King's-road, Chelsea, London, S.W.
Dorrington, A. R., & Co., electrotypers, 8, Stanhope-street, Strand, London, W.C.
Dorset, W., railway signal manufacturer, High-street, Epsom.
Dossor, A. L., mechanical engineer, 11, Queen Victoria-street, London, E.C.
Doulton & Co. (late Ruder, Bourne & Co.), manufacturers of all kinds of earthenware telegraphic appliances, Holborn-circus, London, E.C., and Burslem, Staffordshire.
Doulton & Co., crucible manufacturers, 100, Soho, Liverpool.
DOULTON, HENRY, & CO., drain pipe manufacturers, Granville-wharf, Granville-street, Birmingham. Also Rowley Regis, Staffordshire; chief office, Lambeth Pottery, London, S.E.
Doublet, Thos. & Hy., opticians, 11, Moorgate-street, London, E.C.
Dougans, Andw., & Son, zinc manufacturers, 25, Dunlop-street, Glasgow.
Douglass, W., & Co, tool makers, 4, Upper Well-street, Coventry.
Dove, J., & Co., lighthouse engineers, 18, Greenside-lane, Edinburgh.
Dovey, Edmund, wire worker and weaver, 73, Whitfield-street, Fitzroy-square, London, W.
Downie & McClute, manufacturing chemists, 83, Pitt-street, Glasgow.
Downing, Geo., & Co., patent agents, 8, Quality-court, Chancery-lane, London, W.C.
Downs, Charles & Co., coppersmiths & Braziers, 93, Southwark-bridge-road, London, S.E.
Downs, T., & Son, electrical instrument makers, 192, Bethnal-green-road, London, E.
Downton, J., & Co., coppersmiths & braziers, 71, West India Dock-road, London, E.
DOWSON ECONOMIC GAS CO., LTD., gas generating machine manufacturers, 3, Great Queen-st., Westminster, London, S.W. Economic gas machine.
Doxey, J., electro-plate manufacturer and dealer, 28, Burgess-street, Sheffield.
Drake, Wm., Son, & Co., mechanical engineers, 30, Budge-row, London, E.C.
Drake Walls Tin and Copper Mining Company, Calstock, Cornwall.
Drew & Cadman, air-tight glass case makers, 245 & 246, High Holborn, London, W.C.
Drew, Hubert, metal merchant & dealer, 37, Montague-street, Birmingham.
Dring & Fage, electric alarms, 145, Strand, London, W.C.
Drinkwater, George, consulting engineer, 107, Old Chester-road, Tranmere, Birkenhead.
DRIVER, GEORGE, telegraph engineer, 406, Euston-road, London, N.W.
Dronfield Tradesmen's Association (Herbert Coaling, secretary), Sheffield-road, Dronfield.
Drummond, Wm., coppersmith, 118, King-street, City, Glasgow.
Drury, Robert Francis, patent agent, 24, George-street, Sheffield.
Drwsycoed Copper Mining Company, Limited, 2, Tuthill-terrace, Carnarvon.
DRY, HENRY, 124, New John-street, Birmingham.
Dryden & Foord, mechanical engineers, 10, Kinaston-street, Lambeth, London, S.E.
Dryden, John, brass and copper founder, Lower Kennington-lane, London, S.E.
Dubs & Co., mechanical engineers, 9, New Broad-street, London, E.C.
Dubs & Co., Glasgow Locomotive Works, Gushetfaulds, Glasgow.
Ducher, F., electro-gilder and plater, 21, Lisle-street, Leicester-square, London, W.
Duck, John Thomas, brass manufacturer, 4, High-street, Vauxhall, London, S.E.
Duckering, C., lamp post manufacturer, Rosemary-lane, Lincoln.
Duckham, Heber, mechanical engineer, 35, Queen Victoria-street, London, E.C.
DUDGEON, RICHARD, hydraulic jacks, tube expanders, steam hammers, 114, Fenchurch-street, London, E.C.
Dudley, T., electric bell fitter, 5, Pinfold-street, Bilston.
Dudson, J., earthenware manufacturer, Hope-street, Works, Hanley, Staffordshire.
Dugard Bros., rolling mills and rolled metal manufacturers, Vulcan Rolling Mills, Bridge-street-west, and Lower Hospital-street, Birmingham.
Duke, Waring & Crisp, wire workers and weavers, 139, Wardour-street, Soho, London, W.
Duke, A. H., electric bell manufacturer, 4, Hanover-street, Portsea, Hants.
Duncan Bros., high-speed engine makers, wrought iron pulleys, belting and gearing, steam engines and boilers, and wire drawing machinery, 32, Queen Victoria-street, London, E.C.
DUNCAN, WATSON & CO., oil merchants and grease manufacturers, Dashwood-house, New Broad-street, London, E.C.
Duncan, G., wheel cutter, 7, Argyle-st., Glasgow.

Digitized by Google

Dunderdale, C., steel manufacturer and merchant, 119, St. Vincent-street, Glasgow.
Dunlop, Bell & Co., steam engine makers, 32, Greenland-street, Liverpool.
Dunlop, Wm., brassfounder, 79, Bothwell-street, Glasgow.
Dunn, Bennett, & Co., earthenware manufacturers, Boothen Works, Brook-street, Hanley.
Dunn & Broughall, lead merchants, 142, High-street, West Bromwich.
Dunn, B., coppersmith, 41, King-street, Derby.
Dunn, H., telegraph engineer, Caledonian Railway Co.
Dunn's Patent Rock Drill Co., mechanical engineers, 193, Goswell-road, London, E.C.
Dunsmuir & Jackson, boiler makers, Govan Engine Works, Glasgow.
Duplex Electric Light, Power and Storage Company, Limited, 9, Soho-square, London, W.
Duprè, Auguste, P.H.D., F.R.S., F.C.S., analytical chemist, 17, Pembroke-gardens, Kensington, London, W.
Dupree, Charles, wire worker and weaver, 201, Green-street, Bethnal Green, London, E.
Durham & Co., mechanical engineers, 23, Leadenhall-street, London, E.C.
Dussek, Alex. Louis, grease manufacturer, Windmill-lane, Deptford, London, S.E.
Düsseldorfer, Eisen & Draht-Industrié, wire drawers, 6 Lime-street, London, E.C.
Dutson & Co., brassfounders, 55, St. Paul's-square, Birmingham.
Dutton & Benton, electro-platers, 13, Norfolk-lane, Sheffield.
Dyer Bros., electro-gilders and platers, 12, Waterloo-place, Clerkenwell, London, E.C.
Dyer, Bernard, F.C.S., F.I.C., analytical chemist, 17, Great Tower-street, London, E.C.
Dyus, John, & Co., hinge makers, 28, New Charles-street, City-road, London, E.C.
Dyson & Co., brass and copper founders, 60, Pitfield-street, Hoxton, London, N.
Dyson, Joseph, & Co., steel merchants, Mill Bank Steel Works, Birch-road, Attercliffe, and at Tilt Mills, Thurgoland, Sheffield.

E.

Eabourn & Honour, electro gilders and platers, Hatton-garden, London, E.C.
Eadon & Son, glass shade makers, 130, High Holborn, London, W.C.
Eades, W., Son & Co., pulley makers (Eades' patent), Westminster Works, Montgomery-st., Sparkbrook. Birmingham.
Eadie, Jas., & Co., tube makers, Clydesdale Tube Works, Rutherglen, Glasgow.
Eagle Galvanizing & Tin Coating Co., galvanizers, 46, Tower Chambers, Moorgate-street, London, E.C.
Eagle Iron Works Co., brass founders, Bond-street, Coventry.
Eagles, Henry, brass and copper founder, 32, Rochester-row, Vauxhall Bridge-road, Westminster, London, S.W.
Eagles, T. B., mechanical engineer, 1, Joiners' Hall-buildings, Upper Thames-street, London, E.C.
Earl & Philip, electrolier, lamp and lustre manufacturers, 113, London Wall, London, E.C.
Earle, Bourne, & Co., brass and copper tube makers, Hooper-street, Spring-hill, Birmingham.
EARLE, N., high speed engine maker, (the Hodson's), 80, Cannon-street, London, E.C.
Earp, Wm. R., & Co., ammonia manufacturers, Hutton-road, Runcorn.
Easterbrook, Allcard & Wild, machine tool makers, Albert Works, Penistone-road, Sheffield.
Easterbrook, Hannaford & Co., railway signal manufacturers, 4, Queen Ann's-gate, London, S.W.
Eastern Electric Light and Power Company, Limited, 53a, Old Broad-street, London, E.C.
Eastern Extension Australasia & China Telegraph Companies, Limited, 66, Old Broad-st., London, E.C.
Eastern Telegraph Companies, Limited, 66, Old Broad-street, London, E.C. Stations.—11, Old Broad-street, London, E.C.; 8, Leadenhall-street, E.C.; 3, Great Tower-street, E.C.
Eastern and South African Telegraph Co., 66, Old Broad-street, London, E.C.
Eastern Telegraph Co., (Draper, Geo., Secretary), 66, Old Broad-street, London, E.C.
Easdale, R. M., & Co., brass founders, 126, Bothwell-st., Glasgow.
East Ferry Road Engineering Works Co., steam engine boiler makers, Millwall, London, E.C.
EAST LONDON GALVANIZING AND METAL COMPANY, LIMITED, 31, Lombard-street, London, E.C.
East London Rubber Co., india rubber manufacturers, 3, Great Eastern-street, London, E.C.
Eastgate, Charles John, brazier, 55, Tower-street, Birmingham.
Easton & Anderson, steam engine makers, 3, Whitehall-place, S.W.
Easton, Jas. & Co., india rubber merchants, 17, Oswald-street, Glasgow.
Easton, A., brass founder, 134, Renfield, Glasgow.
Easton, R., mechanical engineer, 105, Summer-street, Southwark-bridge-road, London, S.E.
Easton, William, charcoal manufacturer, Wellgate, Rotherham.
Eaton, Thomas & Booth Henry, steel tilters, rollers and forgers, Owlerton Bridge Works, Owlerton, Sheffield.
Eaves, Thomas, screw manufacturer, Scotland-street, Birmingham.

Digitized by Google

Eaves, W., electric bell manufacturer, 24, St. Margaret's-green, Ipswich.
Ebner, T., electro gilder and plater, 182, Seymour-street, Euston-square, N.W.
Eckersley Bros., lead manufacturers, 103, Lees-road, Oldham.
EDELSTEN, WILLIAMS & Co., telegraph wire manufacturers, New Hall Works, George-street Parade, Birmingham.
Edelsten & Co., wire workers and weavers, 94, Sun-street, Bishopsgate-street, E.C.
EDGAR, EDMONDS, & CO., patent agents, 203, Strand, London, W.C.
Edgar, T., mill band manufacturer, Corporation-street, 19, Mount-street, Walsall.
Edge, Josph., & Sons, optical glass makers, 78, Dudley-road, Birmingham.
Edge, Malkin & Co., earthenware manufacturers, Newport Works, Burslem, Stafford.
Edger, A. J. M., analytical chemist, 13, Dean-street, Newcastle.
Edinburgh and Birmingham Brass Foundry Company (The), electric bell manufacturers, 10, St. James'-square, Edinburgh.
Edington, T., & Sons, lamp post manufacturers, Garscube-road, Glasgow.
Edington, Thomas, & Sons, gas pipe makers, 63, Old Broad-street, London, E.C.
Edison's Electric Light Co., 19, Victoria-buildings, Manchester. Telephone No. 532.
Edison Electric Light Co., Limited, electric light and power contractors, 74, Coleman-st., London, E.C.
Edison Electric & and Writing Agents, electric writing apparatus makers, 138, Fenchurch-st., London, E.C.
Edison Gower Bell Telephone Co. of Europe, Limited, 6, Lombard-street, London, E.C.
Edmiston & Son, india rubber manufacturers, 14, Cockspur-street, Charing Cross, London. S.W.
Edmunds, Henry (Creswick & Co.), brass founders, 45, Burby-street; Lozells; office, 1, Ropewalk, Dale-end, Birmingham.
Edmundson, J., & Co., electric light engineers, 19, Great George-street, London, S.W,
Edwards & Bradley, india rubber manufacturers, 266, South Lambeth-road, London, S.W.
Edwards & Co., india rubber manufacturers, 64a, Gracechurch-street, London, E.C.
Edwards & Co., iron and steel merchants, Walsall, near Birmingham.
Edwards, C. J., & Sons, leather driving band makers, 32, Great Sutton-st., Clerkenwell, London, E.C.
Edwards, Geo., & Sons, electric clock makers, 92, Buchanan-street, Glasgow.
Edwards, Job, & Co., iron founders, Wednesbury, Birmingham.
Edwards, J., & Son, earthenware manufacturers, Dalehall Pottory, Burslem, Stafford.
Edwards, R. J., & Co., emery wheel and machinery makers, Charles-street, Curtain-road, London, E.C.
Edwards & Son, electro gilders and platers, 34, Great Sutton-street, London, E.C.
Edwards & Symes, steam engine boiler makers, Wharf-road, Cubitt Town, London, E.
Edwards, S. A., & Co., copper merchants, 38, Edmund-street, Birmingham.
Edwards, A., mechanical engineer, 272, Kentish-town-road, London, N.W.
Edwards, F., mechanical engineer, 127, Leadenhall-street, London, E.C.
Edwards, Fred., consulting engineer, 15, Cambridge-street, Newcastle.
Edwards, George A., brass and copper founder, 15, Devonshire-street, E.
Edwards, Harry S., metal merchant, Printing-court-buildings, Alkenside-hill, Newcastle.
Edwards, J., mechanical engineer, 13 & 14, King-street, Cheapside, London, E.C.
Edwards, Wm., wire worker and weaver, 62, Flood-street, Chelsea, London, S.W.
Edwards, W., earthenware manufacturer, Russell-street, Longton, Stafford.
Eels, F., electro plate manufacturer and dealer, 11, Clerkenwell-green, London, E.C.
Eglinton Chemical Co., Limited, manufacturing chemists, 31, St. Vincent-place, Glasgow.
Eglington, F., electro gilder and plater, 38, Park-street, Walsall.
Elder, J., & Co., mechanical engineers, 5, Lime-street, London, E.C.
Elder, John & Co., boiler makers, Fairfield, Govan, Glasgow.
Elder, David W., mathematic teacher, 1, Nithsdale-place, Glasgow.
Eldree, Horace H., electrical inventor, 31, Queen Victoria-street, London, E.C.
Electric Agency, electrical sundry apparatus makers, 20, Great St. Helen's, London, E.C.
Electric Carbon Manufacturing Company, electricians, Atlas Works, Webber-st., New-cut, London, S.E.
ELECTRIC CARBON MANUFACTURING COMPANY, electric carbon manufacturers, 10, Mansion House-chambers, 11, Queen Victoria-street, E.C.
Electric Carbon (The) Storage and Apparatus Manufacturing Company of Scotland, Limited, Exchange-buildings, Leith.
ELECTRIC FINANCE ASSOCIATION (A. Shippey, General Manager), 13 & 14, King-street, Cheapside, London, E.C.
Electric Light Carbon Company (The), 133A, Great Suffolk-street, Borough, London, S.E. Every description of carbons for electrical purposes.
Electric Light Engineering Company, 35, Queen Victoria-street, London, E.C.
Electric Light, Power and Storage Company (Australasian), Limited, 4, Copthal-buildings, London, E.C.
Electric Light and Power Generator Company, Limited, dynamo magnets and electric machine manufacturers, 47, Cannon-street, London, E.C.
Electric Light and Storage Company, Commercial-road Works, Wolverhampton.
Electric Lighting Contract and Maintenance Company, Limited, 1, Queen Victoria-street, London, E.C.

Digitized by Google

ELECTRIC LIGHTING AND GENERAL AGENCY COMPANY (Manager, J. Clew). Domestic electricians, electric light contractors, electricians, engineers, and general suppliers of electrical requisites, Crown-buildings, 79, Queen-street, London, E.C.

ELECTRIC LIGHTING SUPPLY AND FITTING COMPANY (THE), electric lamp (incandescent) manufacturers, 1, Victoria-mansions, Victoria-street, Westminster, London, S.W. Sole makers of Hedge's patent spark reducing switches, as used by all the leading companies; kept in stock at the Supply Company's Stores.

Electric News Telegraph Company, Limited, 4, Ludgate-circus, London, E.C.

Electric Railway Signal Company, Stone Cross, Mansfield, Notts.

ELECTRIC "SUN" LAMP AND AND POWER COMPANY (THE), LIMITED, St. Margaret's Offices, Victoria-street, Westminster, London, S.W.

Electric Trading Company, makers of electric lamps, arc and incandescent, carbons, batteries, electric motors, covered wire, electrical condensers, cables, &c., 2, Victoria-mansions, Westminster, London, S.W.

Electric Writing Company (The), 1, King's Arms-yard, London, E.C.

Electrical Insulator Manufacturing Company, Limited, 31, Lombard-street, London, E.C.

Electrical Power Storage Company, Limited, 4, Great Winchester-street-buildings, London, E.C.

ELECTRICAL TRADING COMPANY, makers of electrical instruments, dynamo and electric magnetic machines, electric motors, condensors, accumulators, lamps, arc and incandescent, carbons, covered wire, &c., 2, Victoria-mansions, Westminster, London, S.W.

Electro Motive Force Company, Limited, electric light company, 6, South Hanover-street, Glasgow.

ELECTROLYTIC COMPANY, "ELMORE'S DYNAMO-ELECTRIC MACHINE," ELECTRO PLATERS AND ELECTROTYPERS' PLANT AND MATERIAL MANUFACTURERS, Charlotte-street, Blackfriars, London, S.E.

Electrotype Agency, electrotypers, 31, Paternoster-square, London, E.C.

Eley & Co., magnetic curative appliance manufacturers, 192, Sloane-street, London, S.W.

Elkan, J., electro plate manufacturers and dealers, 135, Strand, London, W.C.

Elkington & Co., bronzists, 42, Moorgate-street, London, E.C.

Elkington & Co., electro plate manufacturers and dealers, Newhall-street, Birmingham.

Ellaway, Henry Horn, brass founder, 95, Lombard-street, Birmingham.

Ellicott, Charles, optician, 267, Mile-end-road, London, E.

Elliott Brothers, electricians, 449, Strand, London, W.C.

Elliott, Sir George, & Co., lightning conductor manufacturers, West Bute Docks, Cardiff.

Elliott, I. J. & Son, electric bell fitters, 16, Low Friar-street, Newcastle.

Elliott, E., brass finishers, Neale's-yard, Wheeler-gate, Nottingham.

Elliott, G., mechanical and general engineer, 188, Long-lane, Borough, London, S.E.

Elliott, W.D., C.E., consulting engineer, Salthouse-lane, Hull.

Elliott's Metal Company, manufacturers of brass, copper wire, &c., 93, Cannon-street, London, E.C., and Selly Oak Works, Birmingham.

Ellis, Jas., & Co., oil merchants and refiners, 17, Cross-street, Blackfriars-road, London, S.E.

Ellis & Co., boiler non-conducting composition makers, 59, Mark-lane, London, E.C.

Ellis, E., & Co., lightning conductor manufacturers, 13, Emmett-street, Limehouse, London, E.

Ellis, C., & Sons, brass masters and merchants, 28, Constitution-hill, Birmingham.

Ellis, J. C. & J. S., iron founders, Norfolk Foundry, Leadmill-street, Sheffield.

Ellis, Edwin, felt maker, Horney-lane, Neckinger, Bermondsey, London, S.E.

Ellis, E. H., mechanical engineer, 173, Salmon's-lane, London, E.

Ellis, Jas., mechanical engineer, 144, Houndsditch, London, E.

Ellis, W., electrician, Royal Observatory, Greenwich.

Elmore, W., electrical engineer, 91, Blackfriars-road, London, S.E.

Elsmore, T., & Son, earthenware manufacturers, Clay-hill Pottery, Tunstall, Staffordshire.

Elphic & Co., mechanical engineers, 60, Baring-street, New North-road, Hoxton, London, N.

ELPHINSTONE-VINCENT DYNAMO ELECTRIC MACHINE COMPANY, 79½, Gracechurch-street, London, E.C.

Email and Metallwaaren Fabrik, Zug (Hand Bros.), enamellers of glass and iron, 81, Queen Victoria-street, London, E.C.

Emanuel, A., & Sons, brass and copper founders, 53, Marylebone-lane, Oxford-street, London, W.

Emanuel & Cohen, lead merchants, 82, Newington-causeway, London, S.E.

Emberton, T. J. & J., earthenware manufacturers, Highgate Pottery, Tunstall, Stoke-on-Trent.

Embleton & Co., machine tool makers, 46, Tower-chambers, Moorgate-street, London, E.C.

Embleton, J. T., wood engraver, 21, St. Bride-street, London, E.C.

Embley, Samuel, brass caster, 130, Heath Mill-lane, Birmingham.

Embrey & Parry, tube makers (mandrel), 86½, New John-street West, Birmingham.

Emery Genuine Maxos Company, emery wheel and machinery makers, 23, Cruichet Friars, London, E.C.

Emery, W., & Co., electrotypers, Albion Brass Works, Arundel-street, Sheffield.

Emery, A. H., rolling mills and rolled metal manufacturers, Victoria Mills, 389, Lichfield-rd, Birmingham

Digitized by Google

Emery, F. J., earthenware manufacturers, Bleak Hall Works, Bleak-street, Burslem, Stafford.
Emmerson, Murgatroyd & Co., mechanical engineers, 84, Cannon-street, London, E.C.
Emmerton, J., glass blower, 13, Kirby-street, Hatton-garden, London, E.C.
Enamel Sign Company, enamellers of glass and iron, 6, Devonshire-square, London, E.C.
Engelbert & Co., lubricant manufacturers, 70, Bishopsgate-street Within, London, E.C.
Engert & Rolfe, felt makers, Barchester-street, Poplar New-town, London, E.
England, W., brass founder, 4, Turner-street, Suffolk-road, Sheffield.
English and Australian Copper Company, Limited, 6, Gracechurch-street, London, E.C.
English Lamp Company, electrolier lamp and lustre manufacturers, 59, Mark-lane, London, E.C.
English Cable Screw Wire Company, wire workers and weavers, 5, Oxendon-street, Leicester.
English Sulphur Fusion Company, sulphur refiners, 35A, Great George-street, London, S.W.
Ensor & Thomas, galvanizers and galvanized iron and wire manufacturers, Ettingshall, Wolverhampton.
Ensor, E., drain pipe maker, The Pool Works, Woodville, Burton-on-Trent.
Ensor, William B., iron founder, Eagle Foundry, West Bromwich, Birmingham.
Enthover, Henry John & Sons, lead manufacturers, 17, Gracechurch-street, London, E.C.
Erhardt & Co., parchment makers and dealers, 9, Bond-court, Walbrook, London, E.C.
Erin Mineral Water Company of Belfast (The), manufacturing chemists, 84, Norfolk-street, Glasgow.
ERISCHSEN HERMANN G., representative in England of Great Northern Telegraph Company of Copenhagen, 119, Bishopsgate-street Within, London, E.C.
Errington, Thomas, brass founder, Deptford, and Bridge-end Foundries, Bishopwearmouth.
Eschmann Bros. & Walsh, flexible gas, speaking, telephone, &c., tube makers, 23, Bartholomew-square, London, E.C.
Eschweiler Wire Company, Limited, 21, Great St. Helen's, London, E.C.
Eisson, J., mechanical engineer, Elim Works, Fetter-lane, London, E.C.
Etchells, Joseph, brass founder, Turncock-street, Macclesfield.
Etherindge, W., wire drawer, 225, Stafford-street, Walsall.
ETHERINGTON, J., consulting mechanical engineer, 39A, King William-street, London, E.C.
Ettling, Leopold, brass manufacturer, 21, Princes-square, St. George's-street, London, E.
European Telephone Company, Limited (C. Curtoys, sec.), 6, Lombard-street, London, E.C.
Evans, Frederick and Charles, galvanizers, Church-lane, Wolverhampton.
Evans and Jones, analytical chemists, 106, Leadenhall-street, London, E.C.
Evans, J., & Sons, hydraulic engineers, Culwell Foundry, Wolverhampton.
Evans & Matthews, electro platers and gilders, 80, Bull-street, Birminghham.
Evans, Wm., & Co., oil refiners, 140, Liverpool-road, London, N.
Evans, W., & Sons, galvanizers, Melbourne-street, Wolverhampton.
Evans, C., brass founder, St. Martin's-gate, Worcester.
Evans, Dury, metal merchant, 35, Queen Victoria-street, London, E.C.
Evans, Hy., wood engraver, 303, Strand, London, W.C.
Evans, Hy., wood engraver, 8, Red Lion-court, Fleet-street, London, E.C.
Evans, John, chronometer maker, 89, Mount-street, Berkeley-square, London, W.
Evans, J. A., boiler composition makers, &c., 17, Silver-street, Falcon-square, London, E.C.
Evans, M., telegraph engineer, 97, West Regent-street, Glasgow.
Evans, R., stoneware manufacturers, Ilkeston Pottery, Ilkeston.
Evans, S. F., electro plated ware manufacturer, 56A, Great Hampton-street, Birmingham.
EVANS, T., wire drawer, 18 & 19, Smithfield-street, Birmingham.
Evans, T., electro gilder and plater, Summit Works, Walsall.
Evans, W., brass caster, 13, Traffic-street, Derby.
Evans, W., brass founder, School-street, Wolverhampton.
Eve Bros., electro gilders and platers, 39, Nicholas-street, Bristol.
Everall, John, electrical instrument maker, 229B, Camberwell-road, London, S.E.
Everard, J., brass founder, 52, St. Enoch-square, Glasgow.
Evered, R., & Co., Limited, electrolier, lamp, lustre, &c., manufacturer, &c., 27, Drury-lane, London, W.C.
Everist, H., electric bell fitter, 27, Swan-street, Kidderminster.
Everitt, Adams & Co., mechanical engineers, 35, Queen Victoria-street, London, E.C.
Everitt, Allen & Sons, metal merchants, 118, Cannon-street, London, E.C.; works, Adderley-street, Birmingham.
Ewen, Jas., & Sons, melters, 5, Hatfield-street, Blackfriars, London, S.E.
Exchange (Telegraph Companies), Limited, Bartholomew House, 17 & 18, Cornhill, London, E.C.
Exton, Berridge and Partners, tube makers, 127, Page-street, London, S.W.
Eyham Mining Company, lead smelters, Eyam.
Eyland & Sons, brass founders, 11, Lower Rushall-street, Walsall.
Eyles, John F., engraver, 39, Newhall-street, Birmingham.
Eye & Spottiswoode, mathematical instrument makers, Great New-street, Fetter-lane, London, E.C.
Eyton, A., lead pipe manufacturers, 34, James-street, Liverpool.

Digitized by Google

F.

Fabian Brothers, mechanical engineers, 9, New Broad-street, London, E.C.
Fagan, J. & W., belt and screw maker, 271, Pollopshaws-road, Glasgow.
Fairbairn, Kennedy & Naylor, machine tool makers, 26, Parliament-street, London, S.W.
Fairbairns, W. & Sons, electro-plate manufacturers and dealers, 65, St. Mary-axe, London, E.C.
Fairbrother, James & Co., Limited, wire manufacturers, Brown steel & wire mills, Bessemer-road, Attercliffe, Sheffield.
Fairburn, D., wire drawer, Bank Mill, Mirfield, Yorkshire.
Fairburn, D., wire drawer, Sunny Bank, Battyford, Normanton.
Fairburn, J., lead smelter, Stoney Middleton, Sheffield.
Fairley, William, mining engineer, Cannock Wood, Gentleshaw, Rugely, Stafford.
Fairlie, A., mechanical engineer, 40a, King William-street, London, E.C.
Fairlie, William, coppersmith, 18, Wood-lane, Glasgow.
Falcke & Son, crucible makers, Bolingbroke-gardens, Battersea, S.W.
Fanthom, Thomas, brass caster, 62, Moseley-street, Birmingham.
FARADAY & SON, electric apparatus manufacturer, 2, Berners-street, London, W.
Faradon, E., electric bell fitter, 4, Tavistock-street, Leamington.
Farenden, C., telegraph instrument manufacturer, 8, St. Mary's-road, Southampton.
Farmiloe, George & Sons, lead manufacturers, 34, St. John-street, London, E.C.
Farmiloe, T. & W., lead merchants, 19, Rochester-row, Vauxhall Bridge-rd., Westminster, London, S.W.
Farnley Iron Company, Limited, drain pipe manufacturers, 88, Prospect-street, Hull.
Farnol, Henry John, jun., brass founder, 55 & 57, New-street, Aston New Town, Birmingham.
Farr, Richard, leather driving band maker, 312, King's-road, Chelsea, London, S.W.
Farrar, J. B., machinist, Globe Works, Halifax.
Farrell, James, electro plater and gilder, 30, Lower Essex-street, Birmingham.
Farrow & Jackson, mechanical engineers, 18, Great Tower-street, London, E.C.
Farwig, August H. & Co., wire manufacturers, 26, Upper Thames-street, London, E.C.
Farwig & Bullock, wire workers and weavers, 16, Rupert-street, Haymarket, London, W.
Faulkner, Bedford & Co., electricians, 16, Endell-street, London, W.C.
Faulkner, Bedford & Co., mechanical engineers, 468, New Oxford-street, London, W.C.
Faulkner, Alfred, driving band manufacturer, 50, Moor-street, Birmingham.
Faulkner, J., electric bell manufacturer, 13, Great Ducie-street, Strangeways.
FAURE ELECTRIC ACCUMULATOR COMPANY, LIMITED, ACCUMULATORS OF ELECTRICITY, 71, *QUEEN VICTORIA-STREET, LONDON E.C.*
Favell, R. & Co., electro-plate manufacturers and dealers, Bucknall-st., New Oxford-st., London, W.C.
Fawcett, Preston & Co., mechanical engineers, 25, Austin Friars, Old Broad-street, London, E.C.
Fawcett, Thomas C., steam engine boiler maker, Old Victoria Foundry, Manor-road, Leeds.
Fearn John & Co., (malleable) ironfounders, bush brand & rivet manufacturers, 218, Allen-street, and 2, Leicester-street, Sheffield.
Fearn, Thomas, electro-plater and gilder, 300, Camden-street-parade, Birmingham.
Fearnley, D., wire drawer, Robert Town, Loversedge.
Fearns, Francis H. & Co., electrical instrument makers, Trafalgar Works, Trafalgar-road, Old Kent-road, London, S.E.
Feaver, John, oil merchant, 161 & 163, Bermondsey-street, London, S.E.
Feetham, Mark & Co., electric bell manufacturers, 9, Clifford-street, New Bond-street, London, W.
Fehler, William, wire worker and weaver, 44, Dock-street, London Docks, London, E.
Fell, John & Co., brass and copper founders, 9, Fenchurch-street, London, E.C.
Fell, John C. & Co., mechanical engineers, 23, Rood-lane, London, E.C.
Fell, Thomas & Co., Limited, earthenware manufacturers, St. Peter's Pottery, Newcastle.
Fell, W. A., turbine and water-wheel maker, Bridge Iron Works, Windermere.
Fellows, Green & Co., rivet-makers, 134, Fenchurch-street, London, E.C.
Fellows, S. J. & E., galvanizers and galvanized iron wire manufacturers, Vulcan Works, Wolverhampton.
Fellows, J. U., mining engineer, 46, Bradford-street, Walsall.
Felsenthal, Adolph and Max. & Co., brass & copper founders, 7, Bury-court, St. Mary Axe, London, E.C.
Felten & Guilleaume, telegraph submarine cable manufacturers (W. F. Dennis & Co., Agents), 101, Leadenhall-street, London, E.C.
Felting, Coal, Iron & Chemical Company, Limited, chemical manufacturers, Royal Insurance-buildings, Newcastle.
Felton, Joseph, grease manufacturer, 102 & 103, Russell-street, Bermondsey, London, S.E.
Felton, T., lamp and lustre manufacturer, Yates-street, Birmingham.
Fencing Works Co., wire drawers, Soho-street, Eccleshall-road, Sheffield.
Fenn & Co., machine tool makers, 10, Railway-approach, London, S.E.

Digitized by Google

Fenn, W. Thomas, electric bell manufacturer, 5, North-street, Sloane-street, London, S.W.
Fenner, J. H. & Co., driving band manufacturers, Chapel-lane, Hull.
Fenner, Nathaniel, J. and Henry, grease manufacturers, Millwall, London, E.
Fenton, W. J., electro gilder and plater, 29, Northampton-street, Birmingham.
Fergus & Co., steel manufacturers and merchants, 58, York-street, Glasgow.
Ferguson, Thomas & Son, boiler makers, 105, Westmur-street, Parkhead, Glasgow.
Ferguson, Thomas, electric bell fitter, 122, Sauchiehall-street, Glasgow.
Fermo, D. L. & Co., mechanical engineers, 11, Queen Victoria-street, London, E.C.
Ferranti, Thompson & Ince, electric light and power company, 3, Fenchurch-avenue, London, E.C.
Ferris & Williams, oil refiners, 39, Great Sutton-street, London, E.C.
Fesca, A. & Co., mechanical engineers, 3, Botolph-lane, London, E.C.
Field, H., Son & Co., electric bell fitters, 328, St. Vincent-street, Glasgow.
Field, Henry, Son & Co., lightning conductor fitters, 328, St. Vincent-street, Glasgow.
Field, J. C. & C., oil refiners, 58, Bermondsey New-road, London, S.E.
Field, Henry, Son & Co., coppersmiths, 328, St. Vincent-street, Glasgow.
Field, Robert & Co., opticians, 99, Suffolk-street, Birmingham.
Field & Son, electro gilders and platers, Market-square, Aylesbury.
Field, James J., ink manufacturer, 455, Caledonian-road, N. Manufactured of CHEMICAL NON-CORROSIVE INKS, suitable for all climates.
Field, J., mining engineer, The Woodlands, Hill-top, West Bromwich.
Fielding & Co., earthenware manufacturers, Railway Pottery, Stoke-on-Trent.
Fielding & Higginbottom, acid manufacturers, New Mills, Stockport.
Fielding, H., electro-plate manufacturer and dealer, 18, Snape-street, Birmingham.
Finch, George, & Co., glass manufacturers, 39, Rupert-street, Birmingham.
Findlay, J., & Co., cotton waste manufacturers, 113, Virginia-place, Glasgow.
Findlay, J., & Co., manufacturing chemists, 113, Virginia-place, Glasgow.
Finlay & Davidson, lamp post manufacturers, Victoria-street, Port Eglington, Glasgow.
Finney, J., earthenware manufacturer, Victoria Works, Langton, Stafford.
Finney, Peter, & Sons, wire drawers' plate makers, and masons' tools manufacturers, 26, Potter's-hill, Aston-park, Birmingham.
Finnieston Boiler Works, 30, Lanccefield-quay, Glasgow.
Firmin, Hill & Co., metal merchants, 3 and 4, Great Winchester-street, London, E.C.
Firminger, Thomas, charcoal manufacturer and dealer, Eltham-street, Walworth, S.E.
Firth, Thomas, & Sons, iron manufacturers, Whittington Iron Works, Chesterfield; Norfolk Works, Saville-st. East, Sheffield; and London.
Firth, John, crucible manufacturer, 63, Masbro', Rotherham.
Fisher, Hugh D., & Co., lead merchants, 110, Cannon-street, London, E.C.
Fisher, Stephen, & Co., ironfounders (malleable), Pelham Works, Mitchell-street, Sheffield.
Fisher, C. M., zinc manufacturer, 108, Cambridge-street, Glasgow.
Fisher, Theodore, gilder, 85 (back of), Wynn-street, Birmingham.
Fisher, Thos. T., mining engineer, Bank-chambers, The Bridge, Walsall.
Fisher, William, iron merchant, Wicker-arches, Walker-street, and 46, Johnson-street, Sheffield.
Fisher, William, steel merchant, Wicker-arches, Walker-street, and 46, Johnson-street, Sheffield.
Fitch, John Wm., & Co., india rubber manufacturers, 117, Cheapside, London, E.C.
Fitter, J. R., electro-plate manufacturer and dealer, 83, Caroline-street, Birmingham.
Fitzgerald & Barns, brass and copper founders, 145, Union-street, Borough, London, S.E.
Flannery, J. F., mechanical engineer, 9, Fenchurch-street, London, E.C.
Fleay, J. M., electric lamp and lustre manufacturer, 72, Cable-street, Liverpool.
Fleming, A.B., & Co., oil merchants, 15, Whitefriars-street, London, E.C.
Fleming, A. B. & Co., oil merchants, 66, George-street, Parade, Birmingham.
Fleming, Bennett & McLaren, coppersmiths, Elliot-place, Cranstonhill, Glasgow.
Fleming, P. & R., & Co., electric bell fitters, 29, Argyle-street, Glasgow.
Fleming, Thomas, & Son, machine strap makers, 37, Queen Victoria-street, E.C.,
Fleming, J., mechanical engineer, 8½, Great Hermitage-street, Wapping, London, E.
Fletcher, Henry, Son & Fearnall, boiler makers, Union Docks, Limehouse, London, E.
Fletcher, Jennings & Co., high speed steam engines, Lower Engine Works, Whitehaven.
Fletcher, D., tool maker, 29, Mary Ann-street, Birmingham.
Fletcher, Geo. & Co., mechanical engineers, Poplar Iron Works, King-street, Poplar, London, E.
Fletcher, —, telegraph engineer, L. & N. W. Railway Co., Euston Station, Euston-grove, N.W.
Flewitt, Wm., & Son, mechanical engineer, 24, Buross-road, Commercial-road East, London, E.
Flint, Wm., lead merchant, 16, Fortess-road, Kentish Town, London, N.W.
Flintshire Oil and Cannel Co., Limited, oil refiners, Saltney, Chester.
Flockton, Tompkin & Co., steel manufacturers, Newhall Steel Works, Attercliffe, Sheffield.
Flood, G. H. & Co., steam engine makers, 25 & 27, Holland-street, Blackfriars, London, S.E.
Foden, Edwin, brass founder, Elworth Foundry, Booth-lane, Head, Sandbach.

Digitized by Google

Follenfant, J. J., optician, 6, Fieldgate-street, Whitechapel, London, E.
Forbes, D. W. & Co., engineers, Smithfield Works, New-road, Blackwall, E.
Forbes, Professor George, consulting electrical engineer, 35, Duke-street, St. James, London, W.
Ford & Challinor, earthenware manufacturers, Sandyford Pottery, Tunstall, Stoke-on-Trent.
Ford, Thos, electric light fitting maker, Victoria Works, Emily-street, Birmingham.
Fordyce, Edward, glass shade maker, 144, Holloway-road, London, N.
Forester, T., earthenware manufacturer, High-street, Longton, Stafford.
Forrest & Co., mechanical engineers, 21, Lime-street, London, E.C.
FORREST, G., & SON, electric light engineers, 23, New-street-square, London, E.C.
Forrestt & Son, mechanical engineers, Norway-wharf, Commercial-road East, E.
Forrester, G. & Co., steam engine manufacturers, Vauxhall Foundry, 200, Vauxhall-road, Liverpool.
Forster & Gregory, mnftng. & metallurgical chemists, Greyhound-lane, Streatham-common, London, S.W
Foster, Blackett, & Wilson lead manufacturers, 2, Mincing-lane, London, E.C.
FOSTER & WILLIAMS, flexible gas, speaking, telephone, &c., tube makers, india rubber and gutta percha manufacturers and dealers, 87, Grange-road, Bermondsey, London, S.E.
Foster, Wm., & Co., steam engine makers, Wellington Foundry, Lincoln.
Fossick, Wm. G., mechanical engineer, 86, Cannon-street, London, E.C.
Foster, John, bolt and nut manufacturer, 15½, Wynn-street, Birmingham.
Foster, Professor G. C., electrician, 12, Hilldrop-road, Brecknock-road, London, N.
Foster, Professor Wm., M.A., F.C.S., &c., analytical chemist, Midlsx. Hospital, Berners-st., London, W.
Foulger, John & Sons, grease mannfacturers, 6, Lime-street, London, E.C.
Fournet, A., optician, 31, Ludgate-hill, London, E.C. Inventor of an instrument for measuring the sight accurately. Manf. of Binocular Marine Barometers and Spectacles. Illustrated list post free.
Fowler, J., & Co., steam engine makers, 26, Cornhill, London, E.C.
Fowler, J., & Co., steam engine makers, Steam Plough Works, Leathley-road, Hunslet, Leeds.
Fowler, J., & Co., railway signal manufacturers, India-buildings, Edinburgh.
Fowler, J. W., & Son, electro-platers, 2, Kennington-park-road, London, S.E.
Fowler & Sons, wire netting manufacturers, 52, 54 & 56, Lawley-street, Birmingham.
Fowler, John, ironfounders, Don Foundry, Attercliffe-bridge, Sheffield.
Fowles, Thomas & Co., electrolier, lamp and lustre manufacturers, 200, Ebury-street, London, S.W.
Fox & Co., iron merchants, 29 & 31, Carver-street, Sheffield.
Fox & Biggins, electro-platers, 83, Arundel-street, Sheffield.
FOX, EDWIN, & CO., Limited, galvanized iron wire, steel wire, and telegraph wire manufacturers, Magnetic Telegraph Wire Works, 54, Westferry-road, Millwall, London, E.; offices, 5, Great Winchester-street, London, E.C.
Fox, S., & Co., Limited, wire drawers, Stock's-bridge Works, Deepcar, Sheffield.
Fox, Samuel & Co., Limited, wire manufacturers, Stock's-bridge Works, Stocksbridge, Sheffield.
Fox, St. George Lane, & Co., electric engineers, 39A, Threadneedle-street, London, E.C.
Fox, St. G. L., electric light engineers, Anglo-American Brush Company, 108, Belvedere-road, Lambeth, London, S.E.
Fox, T., reflector and shade manufacturer, 30, Hatton-garden, London, E.C.
Fox, Walter, wire worker & weaver, 323, Mile-end-road, London, E.
Foxcroft, J. F., telegraph instrument case maker, 39, Lever-street, St. Luke's, London, E.C.
FOXCROFT, WM. M., telegraph instrument case maker, 36, Percival-street, Clerkenwell, London, E.C. Wholesale maker of the Gower Bell Telephone Cases, as adopted by Her Majesty's Government. Perforator Lock and Block Single Needle Bell Sounder, Transmitter, Photometer, Ammeter (Ayrton and Perry's), and Indicator Cases. Prize medal Paris, 1881.
Frame & Penman, boiler makers, 377, Dalmar-road, Glasgow.
Frampton, Hy. Wm., metal merchant, 42, 43 & 44½, Jewry-street, Winchester, Hants.
France & Morgan, brassfounders, 79 to 91, Wanoch-street, Anderston, Glasgow.
France, John, mechanical engineer, Railway-arch, Carter-street, Walworth, London, S.E.
Francis, Thomas, & Co., ironfounders, Lion Nail Works, Sydenham-road, Sparkbrook, Birmingham.
Francis & Co. (F. R. Francis, manager), telegraph engineers and contractors, Eagle Telegraph Works, Hatton-garden, London, E.C., and Oxford-house, Lawford-road, London, N.W.
Francis, F. R., C.E., consulting telegraph engineer, Eagle Telegraph Works, Hatton-garden, London, E.C., and Oxford-house, Lawford-road, London, N.W.
Francis, George, consulting engineer, 20, Newgate-street, Chester.
Francis, Geo., consulting engineer, Frith, near Wrexham.
Francis, J., electro-plater & gilder, 1, Kingston-street, High Tranmere, Cheshire.
Francis, Jas. Wm., electric bell fitters, 57, Douglas-street, Deptford, London, S.E.
Francis, William, tube brush manufacturer, 184, Gt. Dover-street, London, S.E.
François, Moreu, mechanical engineer, 11, Hayes-court, Soho, London, W.
Francotte, Pirlot, and Co., zinc merchants, 3, Brabant-court, London, E.C.
Frank & Bazien, glass shade makers, 172, St. John-street, London, E.C.
Frank, Theodore, wire manufacturer, 1, Scott's-yard, Bush-lane, London, E.C.

Digitized by Google

Franklin, Hy., & Co., india rubber manufacturers, 72 io 78, Gedling-street, Dockhead, London, S.E.
Franklyn, H. & Co., boiler composition makers, &c., 72, Gedling-street, Dockhead, London, S.E.
Frantz, Henry, & Co., brass founders, 22, 23 & 24, New Canal-street, Birmingham.
Frazer, W. J., & Co., steam engine boiler makers, 98, Commercial-road-east, London, E.,
Fraser, J., copper merchants, 23B, George-street, Edinburgh.
Frazer & Frazer, steam engine boiler makers, Bromley-by-Bow, Loudon, E.
Freeman & Collier, lightning conductor manufacturers, 41, Brook-street, Manchester.
Freeman & Ellison, black lead manufacturers, Brunswick-avenue, Beverley-road, Hull.
Freeman, G. F., & Co., copper merchants, 21, Cooper-street, Manchester.
Freeman, G. S., draughtsman, 5, Victoria-street, Westminster, S.W.
Freeman, George, electro-platers and gilders, 112, Newball-street, Birmingham.
Freeman, Henry, 10, West-street, Golden-square, London, W.
Freeman, J., spring makers, 71, Galway-street, London, E.C.
FRENCH, A. ST. GEO., & CO., electricians, 21, Finsbury-pavement, London, E.C.
French, J. & Co., leather driving band makers, 71 & 73, Commercial-street, London, E.
French, Wm., & Son, lead merchants, 30, Commercial-street, Whitechapel, London, E.
French, W. H., electrotypers, Fleet-street, London, E.C.
French, William, chronometer maker, 2, Dowgate-hill, London, E.C.
Freund, Henry, zinc merchants, 16, Fuller-street, Bethnal-green, London, E.
Frew, John & Co., manufacturing chemists, 120, Mid-wharf, Port Dundas, Glasgow.
Friermann, Alex., mechanical engineer, 15, New Broad-street, London, E.C.
Frigout, Hy., oil merchant, 19, Westmoreland-street, Marylebone, London, W.
Frodsham, C., chronometer maker, Strand, London, W.C.
Frodsham, Geo. Edward, chronometer maker, 31, Gracechurch-street, London, E.C.
Frodsham, Geo. Wm., chronometer maker, 4, Change-alley, London, E.C.
Froom, Sons, & Co., mechanical engineers, 16, Bishopsgate-street Without, London, E.C.
Frost, Isaac & Sons, brass and copper founders, 8, Allen-street, Goswell-road, London, E.C.
Frost, A. J., electrician, 6, Westminster-chambers, Victoria-street, London, S.W.
Frost, Joseph William, brass and copper founder, 58, White Lion-street, London, E.
Froy, Wm. N., lead merchant, 64 & 66, King-street West, Hammersmith, London, W.
Fulford, Arthur, oil merchant, Don-road, Attercliffe, Sheffield.
Fullarton, J., electro-plater, 75, Buchanan-street, Glasgow.
Fuller, John Crisp, & Son, telegraph engineers, 547, Old Ford-road, Bow, E., and 47, Finsbury-pavement, London, E.C.
Fuller, Edwin Fras., brass and copper founder, 43 & 44, Northampton-street, St. John's-street-road, London, E.C.
Fuller, W. M., jun., anti-friction metal merchant, Old Church-chmbrs., St. Peter's-close, Wolverhampton.
Fullerton, Cooper & Co., manufacturing chemists, Newcastle-chase, Quayside, Newcastle.
Fulton & Walker, zinc manfacturers, 131, Govan-street, Glasgow.
Fulton, W. machinery belt maker, 147, Stockwell-street, Glasgow.
Furney, John, brass caster, 114, Bridge-street West, Birmingham.
Furness, W. & Co., steam engine makers, 21, Jasmin-street, Everton, Liverpool.
Furness, Edw., mechanical engineer, 101, Leadenhall-street, London, E.C.
Furnival & Co., machine manufacturers, Reddish Iron Works, near Manchester.
Furnival T. & Son, earthenware manufacturers, Cobridge, Stoke-on-Trent.
Furniss, A. E., electro-plate manufacturers and dealers, 27, Carver-street, Sheffield.
Fursdon Great Consolidated Copper Mining Company, Limited, South Tawton, Okehampton, Devon.
Fynn & Carle, electricans, 22, Pigott-street, London, E.

G.

Galbraith, Jas., wood engraver, 4, Crane-court, Fleet-street, London, E.C.
Gale, Saml., & Sons, electric engineers, 5, Marylebone-passage, Wells-street, London, W.
Gale, W., wood engraver, 4, Victoria-chambers, Temple-row, Birmingham.
Gales, Wm. Henry, tube brush manufacturer, 56, Poplar High-street, London, E.
Galen Chemical Co., Ettingshall, Wolverhampton.
Galleti, John, mathematical instrument maker, 24, Argyle-arcade, Glasgow.
Gallimore & Taylor, iron founders, Windsor Iron Foundry, Windsor-street, Birmingham.
Gallimore, William, & Co., electro platers, 19, Arundel-street, Sheffield.
Galloway & Co., manufacturing chemists, Victoria Chemical Works, Pollokshaws, Glasgow.
Galloway, W. & J., & Sons, steam-engine boiler makers, 64, Cannon-street, London, E.C.
Galloway, H. & M., manufacturing chemists, 4, West Regent-street, Glasgow.
Galton, Captain D., electrician, 12, Chester-street, Grosvenor-place, London, W.

Digitized by Google

Gammon, William, & Co., glass manufacturers, Belmont Glass Works, Great Brook-street, Birmingham.
Gander, R., & Co., india rubber manufacturers, 20, West India Dock-road, Limehouse, London, E.
Gandy, M., leather driving band maker, 130, Queen Victoria-street, London, E.C.
Gapp, J. B., & Co., steam engine boiler makers, Whitecross-street, Borough, London, S.E.
GARDEN & GAGE, MAKERS OF ELECTRICAL SPECIALITIES, ALSO OIL MERCHANTS, SPECIALITIES, OILS FOR GAS ENGINES & DYNAMO MACHINES, &c., 15, KIRBY STREET, HATTON GARDEN, LONDON, E.C.
Gardner & Co., iron tank manufacturers, 38, Rosoman-street, Clerkenwell, London, E.C.
Gardner & Co, mathematical instrument makers, 53, Buchanan-street, Glasgow.
Gardner, John, & Co., lightning conductor fitters, 47, Salisbury-street, Glasgow.
Gardner, J. O., & Co., bolt & nut manufacturers, 134, Fenchurch-street, London, E.C.
Gardner, M. H., & Co., copper merchants, 7, Commercial-buildings, Side, Newcastle-on-Tyne
Gardner, Edward Vincent, analytical chemist, 44, Berners-street, London, W.
GARDNER, H., patent and design registration agent, Fleet-street, London, E.C.
Gardner, J., draughtsman, 134, Fenchurch-street, London, E.C.
Gardner, John, wire worker & weaver, 499, Cambridge-road, London, E.
Gardners, electrolier lamp, lustre, &c., manufr., 453, Strand, and 4 & 5, Duncannon-st., London, W.C.
Garford, John, & Sons, oil merchants, 6, Crosby-square, London, E.C.
Gargett, R., metal merchant, Commercial-street, Middlesborough.
Gregory, James, optician, 41, Bull-street, Birmingham.
Garnar, Chas. & Edward, parchment makers, 96, Rockingham-st., Newington-causeway, London, S.E.
GARNHAM & CO., electricians & telegraphic engineers, Sash-court, Wilson-street, Finsbury, London, E.C.
Garrad, William, brass founder, Warwick Works, 49, Warwick-street, Birmingham.
Garratt & Fowler, brass & copper founders, 33, Liebsic-road, Camberwell New-road, London, S.E.
Garratt, Alfred, india rubber manufacturer, 70, Cheapside, London, E.C.
GARRATT, BENJAMIN COPSON, medical Battery manfr., galvanist, & electrician, 16, Finsbury-square, London, E.C. Mr. Garratt's special system of magneto-electric treatment consists in the application of aura or currents discharged from permanent magnets enclosed in various garments, energising nerve centres and vital organs simultaneously. Specimens of his magneto-electric appliances were exhibited at the International Exhibitions of Electricity in Paris and London and at the Brighton Health Congress. The extreme lightness and flexibility of the magnets employed permit the concentration of a high degree of power on any part without inconvenience or objectionable weight. They also possess the merit of retaining their powers indefinitely, thus ensuring in chronic complaints all the advantages usually obtained by more expensive and inconvenient methods of applying Electricity. Mr. Garratt's published essays on the Philosophy of Health and the Art of Healing may be obtained gratis at his consulting rooms, 16, Finsbury-sq., London, E.C., or Crystal Palace, Sydenham, London, S.E.
GARRATT, BENJAMIN COPSON, medical battery manufacturer, galvanist and electrician, 16, Finsbury-square, London, E.C.
Garrett, R., & Sons, steam engine makers, Leiston Works, Leiston.
Garrett, George Wm., india rubber manufacturer, 205, Kingsland-road, London, E.
Garritt, J. J., electro gilder & plater, 18, Clerkenwell-road, London, E.C.
Garroway, R. & J., manufacturing & metallurgical chemists, 58, Buchanan-street, Glasgow.
Garside, Thomas, file manufacturer, Oughtibridge, Sheffield.
Gartley, John B., manufacturing chemist, 22, Springfield-court, Glasgow.
Garton, Fredk., optician, 191A, Gray's-inn-road, London, W.C.
Gartshore, W., electro gilder & plater, 7, Argyle-street, Glasgow.
Garvie & Co., mechanical engineers, 5, New-street, Bishopsgate-street, London, E.
Gaskell, J., Son, & Co., earthenware manufacturers, Crown Works, Market-place, Burslem, Stafford.
Gass & Co., electro gilders & platers, 166, Regent-street, London, W.
Gatehouse, T., electrician, *Electrical Review*, Paternoster-row, London, E.C.
Gay, E., Lamaille, & Co., bronzists, 13, Charterhouse-street, London, E.C.
Gayler, Thomas, & Co., composition makers, &c., 161, Dalston-lane, London, E.
Gear, Henry, mathematical instrument maker, 54, Buckingham-street, Birmingham.
Gebhardt, Rottmann, & Co., opticians, 24, Lawrence-lane, London, E.C.
Gee, Thomas & James, iron founders, 208, Cheapside, Birmingham.
GEERE, CANNY, & CO., india rubber brokers, 123, Fenchurch-street, London, E.C.
Geeson & Henrick, electric bell fitters, High-street, Uppingham.
Gehrckens, C. O., steam packing makers, 18, Jewry-street, London, E.C.
Gelbfuss, H., vulcanite manufacturers, 63, Finsbury-pavement, London, E.C.
Gem, E., & Co., electro plated nickel silver spoon & fork manufacturers, 27, Charlotte-street, Birmingham.
GENERAL ELECTRIC APPARATUS COMPANY (THE), electric bell manufacturers and general electricians, 33, Aldermanbury, London, E.C.
General Engine & Boiler Co. (The), steam engine makers, Hatcham Iron Works, Pomeroy-street, London, S.E.

Digitized by Google

General House Appliance Manufacturing Co. (The), electricians, 42, Vauxhall Bridge-road, London, S.E.
General Hydraulic Power Co. (The), electric light engineers, Palace-chambers, 9, Bridge-street, Westminster, London, S.W.
General Iron Foundry Co., cast-iron tube makers, 43, Upper Thames-street, London, E.C.
Gent, George, mathematical instrument maker, 96, Rosoman-street, Clerkenwell, London, E.C.
Gent, J. T., & Co., manufacturers of telegraph and telephone wire, electrical instruments, lightning conductors, & electricians, King Richard's-road, Leicester.
George, C. & J., mechanical engineers, 49, Great Chart-street, Hoxton, London, N.
Gerish, Samuel, & Co., hinge makers, 25, Buttesland-street, Hoxton, London, N.
Gerland, B. W., analytical chemist, 124, Buxton-road, Macclesfield.
German Union Telegraph & Trust Co., Limited, 66, Old Broad-street, London, E.C.
Gibb, James, & Co., contractors for the supply of engineers' furnishings, 23, St. Mary-axe, London, E.C.
Gibb, J. F., & Co., mechanical engineers, City-chambers, Railway-pl., Fenchurch-street, London, E.C.
Gibbins, Geo. Wm., optician, 140, Liverpool-road, London, N.
Gibbons, Joseph, Smith, & Son, brass founders, 41, High-street, Aston New Town, Birmingham.
Gibbons, C., electro gilder & plater, 13, Spencer-street, Birmingham.
Gibbs, David & Wm., oil refiners, Hanover-court, Milton-street, London, E.C.
Gibbs, Geo., & Son, parchment makers, 29, St. Bride-street, London, E.C.
Gibbs, Saml., & Co., oil merchants, 32, Great St. Helen's, London, E.C.
Gabellini Sulphur Co., sulphur refiners, 35A, Great George-street, London, S.W.
Gibson & Mathie, lead manufacturers, 49, Brown-street, Glasgow.
Gibson, Andrew, glass bender, 24, Queen's-road, Dalston, London, E.
Gibson, Edward, electro plater and gilder, 79, Newhall-street, Birmingham.
Gibson, O., mechanical engineer, 60, Queen Victoria-street, London, E.C.
Gidney, Clark, & Co., grease manufacturers, 101, Leadenhall-street, London, E.C.
Gifford, N. J., electric bell fitter, Alfred-street, Ripley, Derby.
Gilbert, J., & Co., electro plate manufacturers & dealers, 83 to 85, Ryland-street North, Birmingham.
Gilbert, J., & Co., Limited, electro plate manufacturers, 25, Ely-place, Holborn, London, E.C.
Gilbert, J., electro plate manufacturer and dealer, Sun Works, 61, Bissell-street, Birmingham.
Gilbert, John, mechanical engineer, 91, Raymouth-road, London, S.E.
Gilbody, Alex. H., zinc merchant, 51 & 53, Bridge-street, Manchester.
Gilchrist, James, coppersmith, 14, Carlton-court, Bridge-street, Glasgow.
Gill & Russell, iron tube makers, Cyclops tube works, Walsall, near Birmingham.
Gill & Russell, tube makers, 53, Gracechurch-street, London, E.C.
Gill & White, copper merchants, 13, Mosely-street, Newcastle-on-Tyne.
Gillespie, John, & Co., tube makers, 235, Upper Thames-street, London, E.C.
Gillespie, John, tube maker, 123, Bishopsgate-street Within, London, E.C.
Gillespie, John, tube expander, 35, Queen Victoria-street, London, E.C.
Gillett, Wm., optician, 6, Bell-yard, Temple Bar, London, W.C.
Gilman, Joseph, & Son, cotton waste dealers, 140 & 148, Lancaster-street, and 76, Steelhouse-lane, B'ham.
Gilson, D., electrical instrument maker, 44, Forston-street, Hoxton, London, N.
GIMSON & CO., engineers, ironfounders, boilermakers, & covered wire manufs., Vulcan-st., Leicester.
Giona Sulphur Co., sulphur refiners, Wool Exchange, Coleman-street, London, E.C.
Girvin, Robt., jun., tin merchant, 21, Bush-lane, London, E.C.
Glanvill, Hermon, glass shade maker, 3, Whitfield-street, Fitzroy-square, W.
Glasdir Copper Mining Co., Limited, Dolgelley, North Wales.
Glasgow Copper Works, coppersmiths, 86 & 96, Dale-street, Glasgow.
Glasgow Glass Works, pottery manufacturers, 92, Lancefield-street, Anderston, Glasgow.
Glasgow Iron & Brass Wire Co., coppersmiths, 9, York-buildings, York-street, Glasgow.
Glasgow Patent Felt Co., composition makers for preventing incrustation in boilers, 7, Royal Bank-place, Glasgow.
Glasgow Rubber Works, india rubber manufacturers, Maryhill-road, Glasgow.
Glegg & Thomson, copper merchants, 177, George-street, Aberdeen.
Glen, A. B., & Son, shellac merchants, 9, Howard-street, Glasgow.
Glenboig Fire Clay Co., stoneware drain-pipe manufacturers, 68, Bath-street, Glasgow.
Glenfield's Boiler Fluid Agency, boiler non-conducting composition makers, 37, Walbrook, London, E.C.
Glengall Iron Works, engineers, Glengall-road, Millwall, London, E.
Globe Co., manufacturing chemists, Commercial-road, Glasgow.
Globe Oil Co., 63, Queen Victoria-street, London, E.C.
Globe Telegraph & Trust Co., Limited, 66, Old Broad-street, London, E.C.
Gloucester Wagon Co., Limited, railway signal manufacturers, Gloucester.
GLOVER & HOBSON, mechanical engineers, Albert Iron Works, St. James's-road, London, S.E.
Glover, W. J., & Co., wire rope manufacturers, 76, W. Howard-street, Glasgow.
Glover, W. T., & Co., telegraph wire manufacturers, 25, Booth-street, Manchester.
Glover & Sons, electric bell fitters, Dragon-yard, 85½, Upper Parliament-street, Nottingham.

Digitized by Google

Glover, P., lead smelter, West Bank, Widnes, Lancashire.
Glover, T. G., Col. R. E. electrician, Stapenhill, Sydenham-hill, London, S.E.
Glydon, Shorthouse & Glydon, tube makers, 1A, Lawrence Pountney-hill, London, E.C.
Glydon, George, steam engine & boiler fitting manufacturer, 40 & 41 Oozells-street, Birmingham.
Goadsby & Co., manganese merchants, 2, Albert-bridge, Manchester.
Goatley, William J. T., mechanical engineer, Eden-street, Hampstead-road, London, N.W.
Godart, Frank, wood engraver, 45, Imperial-buildings, New Bridge-street, London, E.C.
Goddard, J. and J., wire drawers, 68, Tottenham-court-road, London, W.
Godfrey, George and Co., iron founders, 73 and 74, Watery-lane and Glover-street, Birmingham.
Godfrey and McCall, electrotypers, 3, Newcastle-street, Farringdon-street, London, E.C.
Godley, Charles, bronzist, 1, Leopold-street, Birmingham.
Godwin, G. A., electro gilder and plater, 304, High Holborn, London, W.C.
Gold, William Henry, and Co., spelter manufacturers, 23, Abchurch-lane, London, E.C.
Goldenburg, L., analytical chemists, 57, Hatton Garden, London, E.C. Experimental and technological laboratories, &c.
Golding, Bexfield and Co., steam packing makers, 1, Lavers-road, Stoke Newington, London, N.
Golding, Alfred, indiarubber manufacturer, 1, Lavers-road, Stoke Newington, London, N.
Goldsmiths' Alliance, Limited, chronometer makers, 11 and 12, Cornhill, London, E.C.
Goldthorp, R. and Co., telegraph wire manufacturers, Upper Rawfold's Works, Cleckheaton.
Gooch, William David, electric engineer, 17, Royal Exchange, London, E.C.
GOODAL, A., and SON, wire staple makers, Brighouse.
Goodall, A., and Son, driving band makers, Brighouse, Yorkshire.
Goodall, J. P., metal merchant, 8, King-street, Newcastle.
Goodbrand and Holland, lightning conductor manufacturers, Southall-street, Manchester.
Goodby, Albert Edward, electro plater and gilder, 102, New John-street west, Birmingham.
Goodchild, Moir and Co., lightning conductor manufacturers, Overgate, Dundee.
Goode and Kenworthy, earthenware manufacturers, High-street, Tunstall, Stoke-on-Trent.
Goode, B. W., rolling mill and rolled metal manufacturer, 24, St. Paul's-square, Birmingham.
Goodfellow and Sons, electro plate manufacturers and dealers, 29, Hatton-garden, London, E.C.
Goodfellow, Benjamin, steam engine boiler maker, Hyde, near Manchester.
Gooding, Joseph, wood engraver, 10, Red Lion-court, Fleet-street, London, E.C.
Goodman, Charles, and Co., boiler non-conducting composition makers, 183, Lambeth-walk, London, S.E.
Goodwin, James, and Co., iron founders, Ardrossan, Johnstone, Motherwell.
Goodwin, William, and Co., machine strap makers, 36, Primrose-street, Bishopsgate, London, E.C.
Goodwin, A., mechanical engineer, 42, Great Guildford-street, London, S.E.
Gorbals Brass Foundry, brassfounders, 99, Portugal-street, Glasgow.
Gorbals Works, tube makers, 20, Buchanan-street, Glasgow.
Gordon, A. M., and Co., lead manufacturers, 59, Bridgewater-street, Liveryool.
Gordon, Alexander, McCullum and Co., metal merchants, 40, Great Tower-street, London, E.C.
Gordon, Beauchamp, and Co., electric engineers, 27, Great George-street, Westminster, S.W.
Gordon, J., and Co., mechanical engineers, 8, New Broad-street, London, E.C.
Gore, George, LL.D., F.R.S., analytical chemist, 67, Broad-street, Birmingham.
Gore, Thomas, electric bell fitter, 45, Douglas-street, Regency-street, Westminster, S.W.
Gorer, S., electro gilder and plater, 89, Edgware-road, London, W.
Gorrill, John, britannia metal and wire manufacturer, Sidney Works, Matilda-street, Sheffield.
Gorway, Walter, wood engraver, 32, Rochester-square, London, N.W.
Goslett, Alfred, and Co., lead merchants, 26, Soho-square, London, W.
Gospel Oak Iron and Galvanized Iron and Wire Company, iron wire manufacturers, 56, Upper Thames-street, London, E.C.
Gough and Felgate, electric bell fitter, Uxbridge-street, Burton-on-Trent.
Gould, E., and Co., lead pipe manufacturer, 4, Cornwall-street, Devonport.
Gough, J., electro plate manufacturers and dealers, 12, Parade, Birmingham.
Gough, W. H., patent agent, St. Peter's-gate, Nottingham.
Gould, James, mechanical engineers, 1, Benwell-road, Holloway, London, N.
Gourock Ropewalk Company, wire rope manufacturers, 11, West-street, Glasgow.
Govan Tube Company, tube makers, 3, Queen-street-place, Cannon-street, London, E.C.
Govan Tube Company, tube makers, Broomloan-road, Govan.
Government Indo-European Telegraph, telegraph company, 49 and 50, Parliament-street, London, W. Director-in-chief, Lieut.-Col. J. U. Bateman-Champain, R.E.; director of traffic, A. Brasher; clerks, C. W. Balls, C. Twisaday, C. Parratt, A. T. Key.
Gower-Bell Telephone Company, telephone company, 6, Lombard-street, London, E.C.
Gowland and Read, chronometer makers, 52, London-wall, E.C.
Gown, James, manufacturing chemist, 84, Roslea Drive, Glasgow.
Grafton and Avigdon, mechanical engineers, 15, Great George-street, London, S.W.
Graham, D. and G., electric bell manufacturers, 267, Sauchiehall-street, Glasgow.

Digitized by Google

Graham, John Hamilton, and Co., opticians, 4, Northampton-square, St. John-street-road, London, E.C.
Graham, William, and Son, oil merchants, 159, Price-street, Birkenhead.
Graham, Malcolm, and Co., patent grease manufacturers, 50, Anderson-street, Gallowgate, Glasgow.
Graham, R., mechanical engineer, 172, Strand, London, W.C.
Grant, Ritchie, and Co., ironfounders, Kilmarnock.
Gratrix, S., jun., and Brother, lead manufacturers and mine owners, Phillips's-park-road, Bradford.
GRAY and CO., metal refiners, 464, Gowan-street, Glasgow.
Gray and Buchanan, copper merchants, 7, Princes-square, Glasgow.
GRAY, J. W., and SON, lightning conductor manufacturers and practical electricians, City office, 58, Fenchurch-street, London, E.C., and Albert Docks; Manufactory, Dora-street, Limehouse, London, E. Patentees of conductors as fitted to the Houses of Parliament, the Royal Palaces, the British Museum, the principal Government buildings, all the Magazines in the country, the principal cathedrals, churches, public and private buildings, and H.M. iron and composite vessels.
Gray, James. Son, and Co., electro platers, 89, Renfield-street, Glasgow.
Gray, John William, C.E., trade mark registration agent, 27, Southampton-buildings, London, W.C.
Gray, Joseph, and Son, magneto-electric machine manufacturers, Truss Works, 51, New George-street, London-road, Sheffield.
Gray, R., and Co., manufacturing chemists, 21, Greenhead-street, Glasgow.
Gray, William, and Co., lead merchants, 11½, West-street, Hull.
Gray, Charles, opticians, 11, Crooked-lane, Cannon-street, London, E.C.
Gray, J. C., electro plate manufacturer and dealer, 51, High-street, Birmingham.
Gray, James, manufacturing chemist, 95, St. James's-road, Glasgow.
Gray, James Henry, optician, 158, Ebury-street, London, S.W.
Gray, John, oil manufacturer, Neepsend-lane, Sheffield.
Gray, John, file manufacturer, Phœnix Works, 160, Matilda-street, Sheffield.
Great Eastern India Rubber Company, 19, Commercial-road, London, E.
GREAT NORTHERN TELEGRAPH COMPANY OF COPENHAGEN, *Hermann Gustave Erichsen*, representative, 119, Bishopsgate-street Within, London, E.C.
GREAT WESTERN ELECTRIC LIGHT AND POWER COMPANY, LIMITED, 31, Lombard-street, London, E.C. Alexander Smith, secretary.
Great Western Pottery and Brick Works (Candy & Co., Limited), 417, 420, Mansion House-Chambers, London, E.C. (At Brown, Stevenson & Co.)
Greathead, Alfred, brass founder, 149, Great Hampton-row, Birmingham.
Greathead, N., optician, 88, Belgrave-gate, Leicester.
Greaves, E., & Sons, file manufacturers, Ecclesfield, Sheffield.
Greaves, H., electro-plate manufacturer and dealer, 47, Chester-street, Sheffield.
Greaves, Jas. Richard, oil merchant, 60, New Oxford-street, London, W.C.
Green & Burleigh, mechanical engineers, 153, Upper Thames-street, London, E.C.
Green, Clarke & Clay, earthenware manufacturers, Stafford-street, Longton, Stafford.
Green, Edward, & Son, economic gas machine manufacturers, 14, St. Ann's-square, Manchester.
Green, Jas. & Nephew, electroliers, 107, Queen Victoria-street, London, E.C.
Green, T. L., & Co. (late John Blackwell), steel manufacturers, Gilcar File Works, 112, Napier-street, Sheffield.
GREEN, T., & SON, LIMITED, steam engine makers (W. H. Cloake, manager), Surrey Works, Blackfriars-rd., London, S.E. (Makers of three cylinder engines specially adapted for electric lighting).
Green, William, & Co., ironfounders, Norfolk Foundry, Ecclesfield, and 4, Corporation-street, Sheffield.
Green, A., & Son, electro gilders and platers, 10, Hylton-street, Birmingham.
Green, S., steel file manufacturer, 119, Newhall-street, Birmingham.
Green, Thomas, metal merchants, 3, Forth-street, Newcastle.
Green, William Fiddian, metal merchant and dealer, 10, St. Paul's-square, and 41, Water-street, Birmingham.
Green, W., electrotyper, 4, Great Vine-street, Regent-street, London, W.
Green, William, wire worker and weaver, 98, Albany-road, Camberwell, London, S.E.
Green, William, mathematical instrument maker, 5, Mount Pleasant, Clerkenwell, London, E.C.
Greenaway, John, wood engraver, 4, Wine Office-court, London, E.C.
Greenaway, T., metal merchant, Ruiton, Upper Gornal, Dudley.
Greene, H., & Son, electrolier lamp lustre, &c., manufacturers, 153, Cannon-street, London, E.C.
GREENER, J. H., electrical and telegraphic engineer electrician, 14, St. Swithin's-lane, London, E.C.
Greenhill, Geo., and Co., oil merchants, 7, Bury-street, St. James', London, S.W.
Greening, N., & Sons, wire drawers, Warrington.
Greenock Felt Works Company, 27, Leadenhall-street, London, E.C.
Greenock Felt Works Company, 134, Fenchurch-street, London, E.C.
Greenvale Chemical Company, Greenvale, Duke-street, Glasgow.
Greenway, Clive, Vale & Co., brass founders, Lower Loveday-street and Princip-street, Birmingham.
Greenwood, D., wire worker, 29, Church-street West, Macclesfield.

Digitized by Google

Greenwood, G., mechanical engineer, 27, George-street, Euston-road, London, N.W.
Gregg, Robert, rope and twine manufacturer, 8, Bridge-street, Chester.
Gregory & Bramall, steel manufacturers, 7, Drapers'-gardens, London, E.C.
Gregory, William, mathematical instrument maker, 51, Strand, London, W.C.
Greig, John, coppersmith, 125, Low-street, Sunderland.
Greiner & Co., electroliers, 81, Queen Victoria-street, London, E.C.
Grenfell, P., & Sons, copper merchants, 27, Upper Thames-street, London, E.C.
Gretton, Benj., & Co., wire workers and weavers, 12, Prospect-row, Birmingham.
Grey & Marten, lead tube makers, Southwark-bridge, London, S.E.
Grey & Selby, opticians, 27, Pelham-street, Nottingham.
Grice, William & Co., ironfounders, Lower Fazeley-street, Birmingham.
Grieve & Gillespie, railway signal manufacturers, 81, Ormonde-street, Jarrow, and 1, Bedford-street, North Shields.
Griffith, William, & Co., steel manufacturers, 3, Surrey-street and Attercliffe, Sheffield.
Griffith, D. C., assayer, 74, Coleman-street, London, E.C.
Griffiths & Co., machine tool makers, 84, Cannon-street, London, E.C.
GRIFFITHS & CO., electrical specialities, 4, Queen Anne's-gate, London, S.W.
Griffiths, Berdoe & Co., lead merchants, 34, Leadenhall-street, London, E.C.
Griffiths & Billingsley, iron tube makers, Wednesbury.
Griffiths, I., & Sons, gas pipe makers, Imperial Tube Works, Mesty Croft, Wednesbury, near Birmingham.
Griffiths, James, brazier, 65½, Emily-street, Birmingham.
Griffiths, John, gilder, 19½, Regent-place, Birmingham.
GRIFFITHS, JOHN CHAS., wood engraver, 100, Fleet-street, London, E.C. (Specialité for delineation of electrical appliances).
Griffiths, R., mechanical engineer, 1, Upper Charles-street, Goswell-road, London, E.C.
Griffin, E. F., & Co., wire drawers, 82, Spencer-street, Birmingham.
Griffin Foundry Company, Stephenson-street, Birmingham.
GRIFFIN, JOHN J., & SONS, chemical glass and apparatus manufacturers, 22, Garrick-st., London, W.C.
Griffin, T., oil merchant, 23, Crown-street, Soho, London, W.C.
GRIGG, WILLIAM, medical electrician, Latimore House, Maidenhead, and 34, Eastbourne-terrace, Paddington, London, W.
Grimes, Thomas Richard, oil merchant, 83, New Bond-street, London, W.
Grimme, F., electro gilder and plater, 29½, Percival-street, London, E.C.
Grindley & Co., grease merchants, Upper North-street, Poplar, London, E. (Anti-friction grease).
Grindley, W. H., & Co., earthenware manufacturers, Newfield Pottery, Turnstall, Stoke-on-Trent.
Grinsell, J., & Sons, electro-plate manufacturers and dealers, Ely-house, 13, Charterhouse-st., London, E.C.
Gritton & Cross, glass blowers, 2, Chatham-row, Darwin-street, London, S.E.
Gritton, W. H., & Sons, chemical glass and apparatus manufacturers, Holland-street, London, S.E.
Groom, Joseph, wire worker and weaver, 249, Great College-street, London, N.W.
Groom, W., tool maker, 11, George-street, Leamington.
Gross, Charles, & Co., chemical merchants, 9, Mincing-lane, London, E.C.
Gross & Sherwood, oil refiners, 2, Little Lant-street, Borough, London, S.E.
Grovenor, F., pottery manufacturer, Bridgeton Pottery, 60, Boden-street, London-road, Glasgow.
Grosvenor, Henry, 1, Bridgewater-square, Barbican, London, E.C.
GROTH, A., consulting engineer, 30, Finsbury-pavement, London, E.C.
Grove & Stark, earthenware manufacturers, Palissy Works, Longton, Stafford.
Grove, W. junr., mining engineer, 104, Oxford-street, Bilston, Stafford.
Grover & Co., mechanical engineers, 9, Victoria-chambers, London, S.W.
Groves, Richard P., mathematical instrument maker, 90, Chapel-street, Pentonville, London, N.
Groves, S., electro plate manufacturer and dealer, 69, Broad-street, Birmingham.
GROVES, W., telegraph instrument manufacturer, 89, Bolsover-street, Fitzroy-square, London, W.
Growcott, J., mining engineer, Wall-heath, Dudley.
Growcott, R., mining engineer, Dawley Brook, Kingswinford, Stafford.
Grubb, G. H., electric bell fitter, 41, Smith-street, Warwick.
Grünfield, Maurice Moritz, optician, 62, St. John's-square, London, E.C.
Gruning, Henry, mechanical engineer, 3 and 4, Great Winchester-street, London, E.C.
Guerrier, Alfred Charles, grease manufacturer, Fulham-fields, London, S.W.
Guest and Chrimes, brass and copper founders, 85, Southwark-street, London, S.E.
Guest, G., earthenware manufacturer, Stoke Pottery, Tunstall, Staffordshire.
GULCHER ELECTRIC LIGHT AND POWER COMPANY, 121, Bishopsgate-street Within London, E.C.
Gulland, J. R., mechanical engineer, 6A, Victoria-street, London, S.W.
Grumbley, Randolph G., electrolier lamp manufacturer, 82 and 84, Moseley-street, Birmingham.
Gummer, George, wire worker and weaver, 50, Church-street, Deptford, London, S.E.

Digitized by Google

Günther, W., turbine and water-wheel maker, Central Engineering Works, Oldham.
Guthrie, J., mica merchant, 22, Norfolk-road, Essex-road, London, N.
Gutta Percha Company, The, electrical engineers, 18, Wharf-road, City-road, London, N.
Guy, H. A., and Co., steel manufacturers, 11, Cloak-lane, London, E.C.
Gwynne and Co., mechanical engineers, Essex-street Works, Victoria Embankment, London, W.C.
Gwynne, J. and H., steam engine makers, 89, Cannon-street, London, E.C.

H.

Haacke, A. & Co., boiler non-conducting composition makers, 21, Lime-street, London, E.C.
Hackett, J., mining engineer, Blackheath, Rowley Regis.
Hackworth, G. H., mechanical engineer, 7, Union-court, Old Broad-street, London, E.C.
Haddon, Thomas & Co., screw manufacturers, Globe Works, Skinner-lane, Birmingham.
HADFIELD'S STEEL FOUNDRY COMPANY, magnetic steel manufacturers, Attercliffe, Sheffield.
Haggie Bros., wire drawers, South Shore, Gateshead.
Hague, Richard, metal merchant, Percy-street, and 6, College-lane, Rotherham.
Haigh, Allen & Co., valve manufacturers, Winding-road Brass Works, Halifax.
Haines, T., telegraph instrument manufacturer, 6, Montpellier-terrace, Cheltenham.
Hald, D. & Co., mechanical engineers, 24, Great Winchester-street, London, E.C.
Hale, G. & Co., brass founders, Shirt End Foundry, near Dudley.
Hall, R., brassfounder, Foxholes, York.
Hales, W. H., brassfounder, Cobridge, Burslem, Staffordshire.
Hall, J. & E., brass and copper founders, 23, St. Swithin's-lane, London, E.C.
Hall, J. & E., steam engine makers, Dartford, Kent.
Hall & Pennington, wire drawers, 287, Shalesmore, Sheffield.
Hall, Thomas, & Co., electro gilders and platers, 22, Bouverie-street, Fleet-street, London, E.C.
Hall Street Metal Rolling Company (J. Bisseker, manager), brass and copper wire manufacturers, Hall-street Works, Birmingham.
Hall, Watkin & Co., earthenware manufacturers, Union-street, Hanley, Staffordshire.
Hall, West & Co., anti-friction metal merchants, Abbey Works, Nuneaton, Warwickshire.
HALL, C. E., RELIABLE FRICTION "CLUTCH" (HALL'S PATENT), SHAFTINGS, &c., MEERSBROOK-BANK, SHEFFIELD.
HALL, C. E., mechanical engineer, Meersbrook Bank, Sheffield.
Hall, George, coppersmith, 35, Mill-lane, Macclesfield.
Hall, J., zinc worker, 348, Spon-lane, West Bromwich.
Hall, Julius, patent and design registration agent, 90, Chancery-lane, London, E.C.
Hall, John Wm., model maker, 257, Kentish Town-road, London, N.W.
Hall, Ralph, lightning-conductor fitter, 1, Prince Edward-street, Cross-hill, Glasgow.
Hall, S., brass founder, Newgate-street, Worksop.
Hall, Thomas Henry, steam packing manufacturer, 3, Costa-green, Birmingham.
Hall, W., telegraph cable manufacturer, Pier-road, Erith.
Hallam Bros., wire drawers, Butterthwaite Works, Ecclesfield, Sheffield.
Hallam, G., & Co., wire drawers. Havelock Works, Walker-street, Sheffield.
Hallam, J., brassfounder, Mosledge, Derby.
Hallamshire Steel and File Co., Limited (William Glossop, secretary; John Hunt, manager), steel manufacturers, Bardwell-road, Neepsend, Sheffield.
Hallett & Fry, antimony refiners, 202, Rotherhithe-street, London, S.E.
Hallett, H. & F., electric bell fitters, 43, Snow-hill, Wolverhampton.
Hallewell, C., telegraph instrument manufacturer, New Briggate, Leeds.
Hallowell, Robert, cotton driving band manufacturer, Palmerston-street, Bollington, Macclesfield.
Halls, Charles Ellis, electrolier lamp and lustre manufacturer, 74, St. George-street, London, E.
Halpin, D., mechanical engineer, 9, Victoria-chambers, London, S.W.
Halse, William Edward, analytical chemist, 21, Mincing-lane, London, E.C.
Hamblen, Charles, lead merchant, 1A, Sherringham-terrace, Westbourne-road East, London, N.
Hamer, James, mechanical engineer, Red Lion-yard, High Holborn, London, W.C.
Hamilton, Robert, coppersmith, 122, Main-street, Bridgeton, Glasgow.
Hamilton, W., electro-gilder and plater, 28, Tarleton-street, Liverpool.
Hammersley, R. M. & Co., earthenware manufacturers, High-street Pottery, Tunstall, Staffordshire.
Hammerton, E., telegraph wire manufacturer, Victoria-street East, Halifax.
HAMMOND & CO., electric light contractors and engineers, 110, Cannon-street, London, E.C.
Hammond & Co., electric light contractors, Middlesbrough.
HAMMOND ELECTRIC LIGHT AND POWER SUPPLY COMPANY, 110, Cannon-street, London, E.C.
Hammet, J., bolt and nut maker, Mount-street, Lord-street, Stockport.

Digitized by Google

Hammett, Thomas, tool maker, 55, Phillips'-street, Aston-park, Birmingham.
Hancock, B. & S., earthenware manufacturers, Church-street, Stoke-on-Trent.
Hancock & Rixon, electrolier lamp and lustre manufacturers, 47, Great Marlborough-street, Poland-street, London, W.
Hancock & Son, brass founders, Wheelock Foundry, Sandbach.
Hancock (The) Inspirator Company, inspirator manufacturers, 35, Queen Victoria-street, London, E.C.
Hancock, Isaac, electrolier lamp and lustre manufacturer, 4, St. Leonard's-road, East India Dock-road, London, E.
Hancock, John, optician, 61, City-road, Finsbury, E.C.
Hancock, J., electro gilder and plater, 40½, Holly-street, Sheffield.
Hancock, J. L., flexible tube maker (gas, &c.), 266, Goswell-road, London, E.C.
Hancock, S., earthenware manufacturer, 26, King-street, Derby.
Hancock, William, electric bell manufacturer, 22, Shatford-road, London, W.
Hancocks, E. H., electro-plater, 38, Arundel-lane, Sheffield.
Handley, E., metal merchant, 7, Burlington-chambers, New-street, Birmingham.
Hand & Son, electro-plate manufacturers and dealers, St. Mary's-chambers, St. Mary-axe, London, E.C.
Hands Bros., brass founders, 68, Kent-street, Birmingham.
Hands & Son, electro-plate manufacturers and dealers, 136, 137 and 138, Suffolk-street, Birmingham.
Hands, John, & Sons, brass founders, Cardigan Works, Belmont-row; and A B row, Birmingham.
Haddyside, A., & Co., mechanical engineers, 32, Walbrook, London, E.C.
Hannan & Buchanan, telegraph instrument manufacturers, 75, Robertson-street, Glasgow.
Hanman, John, jun., fibre manufacturer, 66, Pershore-street; works, 106, Sherborne-road, Birmingham.
Hannay, J. B., manufacturing chemist, Armfield Chemical Works, Sword-street, Glasgow.
Hannay, Thomas, screw-maker, 21, St. Vincent-place, Glasgow.
Hannington, G. H., electrician, 42, Spencer-street, London, E.C.
Hanover Vulcanite Company, vulcanite manufacturers, Moorgate-station-buildings, 63, Finsbury-pavement, London, E.C.
Hanson, Dale & Co., lead-pipe manufacturers, Colne-road, Huddersfield.
Hansell, G., grease manufacturer, Oxford-street, Sulcoates, Hull.
Hanson, Scott & Co., rope manufacturers, Stockport.
Hanson, Henry, & Son, rope and twine manufacturers, Turncroft-lane, Stockport.
Harcourt, Robert C. & Son, tube makers (cased), 223, Moseley-street, Birmingham.
Hardie, Alexander, & Co., bolt and screw makers, 4, York-street, Glasgow.
Harding, T. H., & Son, speed indicator manuufacturers Tower Works, Leeds. (Harding's Speed Indicator.)
Hardman, J. M., manufacturing chemist, Stoke-on-Trent.
Hardy & Padmore, telegraph pole (iron) manufacturers, Blockhouse, Worcester.
Hardy & Pattison, coppersmiths, Commercial-street, Middleton, West Hartlepool.
Harmer, C., & Son, electric bell manufacturers, 11, Lingfield-road, Wimbledon, London, S.W..
Harmer, W., grease manufacturer, Stoneferry, Sutton, Hull.
Harriman, J. J., & Co., galvanisers, 5, Middle-row, Wolverhampton.
Harbord, Henry, leather driving band maker, Millstream-road, Dockhead, London, S.E.
Harborn, T., copper merchant, Dispensary-lane, Low Friar-street, Newcastle-on-Tyne.
Harborow & Co., electric light engineers, 4, Circus-street, Marylebone-road, W.
Harburg India Rubber Comb Company, vulcanite manufacturers, 138, London Wall, London, E.C.
Harburg and Vienna India Rubber Company, vulcanite manufacturers, 10, Tower-chambers, Finsbury-pavement, London, E.C.
Harbutt, Thomas, & Co., galvanisers, 56, Borough-road, North Shields.
HARLING, W. H., mathematical instrument maker, 40, Hatton Garden, London, E.C.
Harcourt, Robert C., & Son, brass founders, 223, Moseley-street, Birmingham.
Hardcastle, George, electro plater and gilder, 1½, Augusta-street, Birmingham.
Harding, Cocks & Co., india rubber manufacturers and dealers, 29, Jewry-street, London, E.C.
Harding & Melbourne, brass founders, Wilderspool Ironworks, Latchford, Warrington.
Harding, Robert, glass-blower, Suffolk-grove, Southwark, London, S.E.
Hardy, J. J., & Co., brass founders, Sunniside, Hartlepool.
Hare, T. M., & Co., wood engravers, 31, Essex-street, London, W.C.
Hare, G. S., consulting engineer, India-chambers, South-side, Queen's Dock, Hull.
Harfield & Co., mechanical engineers, Mansion House-buildings, London, E.C.
Harford and Bristol Brass Company, lead merchants, Golden Heart Wharf, Dowgate, Upper Thames-street, London, E.C.
Hargreaves Bros. & Co., black lead manufacturers, Cleveland-street, Groves, Hull.
Hargreaves, Samuel, & Sons, brass founders, 44, Princip-street, Birmingham.
Harker, John William, coppersmith and brazier, 187, Upper Thames-street, London, E.C.
HARKNESS, William, analytical chemist, Laboratory, Somerset House, W.C.
Harland, R. H., analytical chemist, 79, Great Tower-street, London, E.C.

Digitized by Google

Harle, M., mining engineer, Pelsall, Walsall.
Harling & Hartmann, electricians, 3, Orchard-buildings, Acton-street, Kingsland, London, E.
Harlow, H., electro gilder and plater, 54½, Great Hampton-street, Birmingham.
Harper Bros., electro platers and gilders, 87, Bridge-street, Manchester.
Harper, J., & Co., telegraph engineers, Albion Works, Willenhall, Wolverhampton.
Harper, John Robert, & Co., iron tank manufacturers, 147 and 149, Three Colt-street, London, E.
HARPER & MOORES', crucible manufacturers, 2, Crescent Wharf, Birmingham.
Harper, Henry, electrolier chandelier maker, 58, Northwood-street, Birmingham.
HARPER, R. R., telegraph engineer, 86, Clifton-street, Finsbury, London, E.C.
Harral, Horace Downey, wood engraver, Temple-chambers, Falcon-court, London, E.C.
Harris, P. & Co., manufacturing chemists, 9, Bull-ring, Birmingham.
Harris & Mills, patent agents, 23, Southampton-buildings, London, W.C.
Harris & Pearson, drain pipe manufacturers, Fire Clay and Brick Works, Stourbridge, Stafford.
Harris, T. & Co., electro gilder and plater, 52, Orchard-street, Sheffield.
Harris, Thomas & Son, opticians, 52, Great Russell-street, London, W.C.
Harris & Son, rolling mills and rolled metal manufacturers, Thimble Mill-lane, Birmingham.
Harris, Arthur, electric bell fitter, 172, Bristol-street, Birmingham.
Harris, E. H., assayer, 14, Devonshire-square, London, E.
Harris, Henry, optician, 32, Gracechurch-street, London, E.C.
Harris, Henry M., brass and copper founder, 58A, Newington-causeway, London, S.E.
Harris, Henry Penley, F.C.S., analytical chemist, 14, Buckingham Palace-road, London, S.W.
Harris, James, composition maker, &c. (boilers), 104, Queen Victoria-street, London, E.C.
Harris, Robert, brass founder, 63½, Great Hampton-street, Birmingham.
Harris, R. H., mechanical engineer, 63, Queen Victoria-street, London, E.C.
Harris, W., brass founder, Sumner-lane, Erdington.
Harrison, Cox, Walker & Co., electricians, 4, High-row, Darlington.
Harrison, J., & Co., Limited, electro-plate manufacturers and dealers, 5, Garrick-street, London, W.C.
Harrison, J., & Sons, wire drawers, Cookley Wire Mills, Kidderminster.
Harrison, J., & Sons, electro-platers, 44, Bridge-street, Manchester.
Harrison, William, & Co., asbestos manufacturers, 9, New Broad-street, London, E.C.
Harrison, W. W., & Co., electro-plate manufacturers and dealers, 99, Hatton-garden, London, E.C.
Harrison, W. W., & Co., electro-plate and nickel silver spoon and fork manufacturers, Pepper-alley, Fargate, Sheffield.
Harrison & Wilcock, oil merchants, Bridge-street, Attercliffe, Sheffield.
Harrison, B., mechanical engineer, 305, Kingsland-road, London, E.
Harrison, Edward, composition maker, &c., 17, Fenchurch-street, London, E.C.
Harrison, Frederick A., brass founder, Albion Works, Legge-lane, Birmingham.
Harrison, G., manufacturing chemist, Holderness-road, Hull.
Harrison, George, brass and copper wire manufacturer, 20, Drury-lane, London, W.C.
Harrison, Hugh E., electrical engineer, 110, Cannon-street, London, E.C.
HARRISON, HUGH E., electric engineer and electrician, 2, Red Lion-square, London, E.C.
Harrison, Henry, wood engraver, 32, Fleet-street, London, E.C.
Harrison, John A., consulting engineer, Central-buildings, Grainger-street, Newcastle.
Harriss, Charles, electrolier lamp and lustre manufacturer, 25, Berwick-street, Oxford-street, London, W.
Harriss, Henry Morriss, brass manufacturer, 58A, Newington-causeway, London, S.E.
Harrold, Charles & Co., rolling mills and rolled metal manufacturers, 2 and 3, St. Paul's-square, Birmingham.
Harrop, W., & Co., earthenware manufacturers, Dresden Works, Hanley, Stafford.
Harrop, W., cotton driving band maker, Mellor, Stockport.
Harrow & Co., electric bell fitters, 13 and 14, Portland-street, Soho, London, W.
Hart Brothers, india-rubber manufacturers and dealers, 40, Monkwell-street, Cripplegate, London, E.C.
Hart & Co., mechanical engineers, 28, New Bridge-street, London, E.C.
Hart, David, & Co., mechanical engineers, Wenlock-road, City-road, London, N.
Hart, Son, Peard, & Co., brass and copper founders, 53, Wych-street, Strand, London, W.C.
Hart, G. W., manufacturing chemist, Lowry's Wharf, Wilmington-groves, Lime-street, Newland.
Hart, F., mechanical engineer, 52, Queen Victoria-street, London, E.C.
Hart, John, electro-plater and gilder, 44, Augusta-street, Birmingham.
Hart, W. D., electric bell manufacturers, Short's Observatory, Edinburgh.
Hartley & Arnoux Brothers, railway signal manufacturers, California Works, Stoke.
Hartley & Co., steam engine boiler makers, Canal Iron Works, Hyde, near Manchester.
Hartley, John, & Co., iron wire manufacturers, Newhall Wire Mills, Newhall-road, Attercliffe, Sheffield.
Hartshorn, Edward Thomas, wood engraver, 123, Chancery-lane, London, E.C.
Hartshorne, George, & Co., rivet makers, 4, Corbet-court, London, E.C.
Harvey & Co., steam engine boiler makers, 186, Gresham-house, Old Broad-street, London, E.C.
Harvey Hill Copper Company, Limited, 146, Buchanan-street, Glasgow.

Digitized by Google

Harvey & Peak, electrical instrument makers and opticians, Beak-street, Regent-street, London, W.
Harvey, Robert, & Co., boiler makers, Parkgrove Iron Works, Paisley-road, Glasgow.
Harvey, William, & Co., coppersmiths, 220, Broomielaw, Glasgow.
Harwar, W., draughtsman, 11, Cursitor-street, Chancery-lane, London, E.C.
Harwood, Son, & Harrison, electro-plate manufacturers and dealers, 22, Bedford-street, London, W.C.
Haseltine, Lake, & Co., patent and design registration agents, 8, Southampton-buildings, London, W.C.
Haskell & Co., electrolier lamp and lustre manufacturers, 411, Oxford-street, London, W.
Haslam, E., electric bell fitter, 3, St. Helen's-street, Derby.
Haspe Iron and Steel Works, wire manufacturers, Jeffrey's-square, St. Mary-axe, London, E.C.
Hassall & Singleton, iron founders, Phœnix Foundry, Freeman-street, Moor-street, Birmingham.
Hastie, J., & Co., bolt and screw makers, 14, Ann-street-bridge, Glasgow.
Hatch, J. & R., manufacturing chemists, 83, Pitt-street, Glasgow.
Hastie, Edward, wood engraver, 33, Fetter-lane, London, E.C.
Hatch, George, mechanical engineer, 39, Tavistock-street, Covent-garden, London, W.C.
Hatch, J. R., lead manufacturer, 83, Pitt-street, Glasgow.
Hateley, James, flint glass manufacturer, Chester-street, Dartmouth-street, Birmingham.
Hatfield, John Ayres, bronzist, 20 and 21, Cumberland-street, Middlesex Hospital, London, W.
Hatfull, Robert, composition maker, &c., 23A, Union-street, Deptford, London, S.E.
Hatt, Wm., parchment maker and dealer, 2, King Edward-street, Newgate-street, London, E.C.
Hattemore, M. & Co., wire manufacturers, 265, Bethnal Green-road, London, E.
Hattersley & Falding, electro platers, Snider-works, 109, Napier-street, Sheffield.
Hawes, Alfred, optician, 79, Leadenhall-street, London, E.C.
Hawkes, J. & O. C., glass manufacturers, glass for carriage, hall and street lamps, artists in stained glass; ecclesiastic and domestic, 123 to 129, Bromsgrove-street, Birmingham.
HAWKINS BROS. & CO., wire drawers, Bowling Green-lane, Farringdon-road, London, E.C.
Hawkins & Co., screw manufacturers, 330 and 331, Cheapside, Birmingham.
Hawkins J., & Son, brass founders, Hill Top Brass Foundry, West Bromwich.
Hawkins, S. and Sons, drain pipe (stoneware) manufacturers, Stroud Green-road, Finsbury-park, London, N.
Hawkins, J., mining engineer, Cheslyn Hay, Walsall.
Hawkins, Thomas, electro gilder and plater, 9, St. Mark-street West, Birmingham.
Hawkins, Wm., mechanical engineer, 11, Red Lion-street, Clerkenwell, London, E.C.
Hawksley, Wild & Co., steam engine boiler makers, Brightside boiler and engine works, Brightside-lane, Sheffield.
Hawksley, Geo., mechanical engineer, 420, Caledonion-road, London, N.
Hawley & Co., earthenware manufacturers, Foley, Fenton Culvert, Stoke-on-Trent.
Hawley, Harry, glass manufacturer, 29, Old Haymarket, Sheffield.
Hawthorn, J., earthenware, Abbey Pottery, Cobridge, Burslem, Staffordshire.
Hawthorn, William, consulting engineer, 92, Pilgrim-street, Newcastle.
Hawthorne & Co., electric bell manufacturers, 41, George-street, Euston-road, London, N.W.
Hay, W. & Sons, air-tight glass case makers, 24 and 25 Little Queen-street, London, W.C.
Hay, George, coppersmith and brazier, 6, St. John's-lane, Clerkenwell, London, E.C.
Haybridge Iron Company, Limited, iron wire manufacturers, 4, Corbet-court, Gracechurch-street, London, E.C.
Hayes, Edward, mechanical engineer, 12, Gt. St. Helen's, London, E.C.
Hayes, Henry, brass and copper founder, 190, 192, and 194, St. John-street, London, E.C.
Hayes, John, mechanical engineer, 27, Leadenhall-street, London, E.C.
Hayley, S. and Son, wire drawers, High-street Mall, Cleckheaton, Yorkshire.
Haynes & Ford, tool makers, 48, Northampton-street, Birmingham.
Hayward, D. & Co., zinc merchants, 96, and 97, Blackman-street, London, S.E.
Hayward, Tyler and Co., mechanical engineers, 84 and 85, Upper Whitecross-street, London, E.C.
Haywood, W. J., mining engineer, 269, Castle-street, Dudley.
Hazlehurst and Sons, alkali manufacturers, Camden Works, Runcorn.
Head, Wrightson & Co., mechanical engineers, 7, Westminster-chambers, London, S.W.
Headley, Birch & Co., rolling mills & rolled lead manufacturers, Cumberland Works, Victoria-st., B'ham.
Healey, Brearley & Healey, wire drawers, Little John Mill, Clifton-bridge, Brighouse.
Healeyfield Lead Mining Company, lead manufacturers, Healeyfield, Castle-side, Durham.
Heap, Joshua, & Co., machine manufacturers, Ashton-under-Lyne.
Heap, Wm., & Co., machine manufacturers, Aston-under-Lyne.
HEAP, C. R., electro motor manufacturer; agent for the Electro-Dynamic Company of Philadelphia (Griscom's system), 2, Scott's-yard, Bush-lane, Cannon-street, London, E.C.
Heaps, J. G. & T., lead manufacturers, Leeds.
Hearington, A. H., electrical instrument maker, 374, Euston-road, London, N.W.
Hearndon, Wm., optician, Pillory-st., Nantwich.
Heath Bros., gilders, 58½, Great Hampton-street, Birmingham.

Digitized by Google

Heath, Chas. & Co., chemical manufacturers, Ouseburn, Newcastle.
Heath, H., zinc worker, 16, Alfred-street Central, Nottingham.
Heath, Samuel, brass founder, Cobden Works, 116, Leopold-street, Birmingham.
Heath, W. R., electro gilder and plater, Vittoria-street, Birmingham.
Heathcote, P. & Co., metal merchants, Wolverhampton.
Heaton & Dugard, brass masters, 77 to 80 Lower Loveday-street, Birmingham.
Heaton, R., & Sons, telegraph wire manufacturers, Icknield-street East, Birmingham.
Heaton, W., brass founder, Masbro'-street, Masbro', Rotherham.
Hecker, Paul & Co., chemical merchants, 14, Mincing-lane, London, E.C.
Hedges, K., electric light engineer, 25, Queen Anne's-gate, Westminster, London, S.W.
Hedley, John & Co., oil merchants, 39, Upper Thames-street, London, E.C.
Heginbotham, G. W., barytes maker, Shallcross Mills, Fernilee, Whaley-bridge, Derbyshire.
Heginbotham, Jas., rope and twine manufacturer, Bredbury, Stockport.
Hehner, Otto, analytical chemist, 11, Billiter-square, London, E.C.
Heisch, Charles, analytical chemist, 79, Mark-lane, London, E.C.
Hellary, J. T., mechanical engineer, 14, Rawstorne-street, St. John's-street-road, London, E.C.
Hemming, H., electro-plate manufacturer and dealer, 20, George-street, Parade, Birmingham.
Hempsted & Co., steam engine makers, Phœnix Iron and Crank Works, Grantham.
Hemsley, Thomas & Son, opticians, 4, King-street, Tower-hill, London, E.C.
Henck, jun., J. B., electrical inventors, 31, Queen Victoria-street, London, E.C.
Henderson, C., & Co., coppersmiths, 9, York-buildings, York-street, Glasgow.
Henderson, D. & W., & Co., boiler makers, 30, Lancefield Quay, Glasgow.
Henderson & Glass, iron merchants, 18, 20 & 22, Vulcan-street, Liverpool.
Henderson, H., & Sons, machine strap makers, 63, Bishopsgate-street Within, London, E.C.
Henderson & Meek, electric bell manufacturers, 26, Forrest-road, Edinburgh.
Henderson & Walker, brass founders, 220 Bradford-street, Birmingham.
Henderson, William & Co., coppersmiths, Carpenter-street, South Shields.
Henderson, G., lead merchant, Hexham.
Hendon Spelter Company, spelter manufacturers, High-street East, Sunderland.
Hendre, F. H., brass and copper founder, 65½, 66, 67, York-street, Westminster, London, S.W.
Hendrie, Alex., chronometer maker, 83, Jamaica-street, Glasgow.
Hendry Bros., steam engine indicator, vacuum & hydraulic gauge makers, 79, Great Clyde-st., Glasgow.
Hendry, George & Co., coppersmiths and braziers, Oak-lane, Limehouse, London, E.
Hendry, Wm., & Son, zinc manufacturers, 81, Bothwell-street, Glasgow.
HENLEY'S T. W., TELEGRAPH WORKS CO., LIMITED, galvanised iron wire manufacturers, covered wire manufacturers, telegraph contractors, wire drawers, &c. Offices: 8, Drapers'-gardens, London, E.C.; works, North Woolwich.
Henry, J. T. (executors of), electro-plater, Lincoln Electro-Plate Works, Arundel-street, Sheffield.
HENRY RIFLED BARREL ENGINEERING & SMALL ARMS CO., mechanical engineers, Eagle Wharf-road, Hoxton, London, N.
Henson, Edmund A., electro-plated ware manufacturer, 61½, Constitution-hill, Birmingham.
HEPBURN & GALE, leather driving band makers, 237, Long-lane, Southwark, London, S.E.
Hepton, W., & Son, copper merchants, Hunslet-lane, Leeds.
Herbert, W., & Godfrey, opticians, 7, Peahen-court, Bishopsgate-street, London, E.C.
Herbert, J. M., mechanical engineer, 8, Southampton-street, Fitzroy-square, London. W.
Hernulewicz, E. S. & Co., wire netting manufacturers, 47, Moorgate-street, London, E.C.
Hervè, Louis, screw maker, 22, Farringdon-road, London, W.C.
Heslop & Wilson, metal merchants, Exchange-buildings, Lombard-street, Newcastle.
Heslop, John, mechanical engineer, St. Andrews, Auckland, Bishop Auckland.
HETT, CHARLES L., turbine and water wheel manufacturer, Ancholme Iron Works, Brigg, Lincolnshire. Patent "Trent" Turbine.
Heuser, Dan, steel manufacturer, 1, Fowkes'-buildings, Great Gower-street, London, E.C.
Heursh, J. G., electric bell fitter, 42, Eagle-street, Red Lion-square, London, W.C.
Hewitt, C. E., india rubber manufacturer, 8, Chapel-lane, Hull.
Hewitt, Geo., wood engraver, 28, Ludgate-hill, London, E.C.
Heyes Bros., wire drawers, Appleton, Widnes, Lancashire.
Heywood Bros., manganese merchants, 4, Pearson's-place, Cardiff.
Hibbard, George, optician, Havelock Works, Walker-street, Sheffield.
Hibberd, C., gilder, 14 Court, Carver-street, Sheffield.
Hibbert & Co., lightning conductor manufacturers, 56, Granby-row, Manchester.
Hick, Hargreaves & Co., steam engine makers, Soho Iron Works, Bolton.
Hickling & Co., manufacturing chemists, Banbury-street, Birmingham.
Hickman, Joseph Thomas, brass founder, 4, Upper Portland-street, Aston Park, Birmingham.
Hicks Bros., oil merchants, 1, Maiden-lane, Queen-street, Cheapside, London, E.C.
Hicks, J. J., glass blower, 8, Hatton-garden, London, E.C.

Digitized by Google

Hicks, John, brass founder, 24 and 26, Charles-street, Sheffield.
Hicks, Robert, iron founder, 21 and 22, Goodrick-street, Birmingham.
Higgin, Lloyd & Co., copper merchants, Little Peter-street, Manchester.
Higginbottom, J., cotton driving band maker, Charlesworth, Broadbottom.
Highfield, George & Co., wire manufacturers, 13, Union-street, & Havelock's Works, Walker-st., Sheffield.
Hilcox, S., electro gilder and plater, 59½, Great Hampton-street, Birmingham.
Hildick, Mills & Hildick, iron tube makers, Walsall Tube Works, Walsall, near Birmingham, and 56, Leadenhall-street, London, E.C.
Hilger, Adam, optician, 192, Tottenham-court-road, London, W.
Hill & Chilton, galvanisers, 1, Pearson-street, Wolverhampton.
Hill & Co., electro-plate manufacturers and dealers, 3, Bridge-street, Westminster, London, S.W.
Hill, Henry & Sons, india rubber manufacturers & dealers, 38, Bow-lane, & 19, Garlick-hill, London, E.C.
Hill, J. C., & Co., Limited, wire drawers, Oakfields Ironworks, Cwmbran, Newport.
Hill, Richards & Co., telegraph wire manufacturers, Newport Wire Mills, Middlesbrough.
Hill & Sons, brass founders, Albion Works, Horseley-fields, Wolverhampton.
Hill, William & Henry, iron founders, Phillips'-street, Aston-brook, Birmingham.
Hill, Alfred Bostock, M.D., F.I.C., analytical chemist, 14, Temple-street, Birmingham.
Hill, Charles, glass-blower, 43, Warwick-street, Borough-road, London, S.E.
Hill, Edmund, wood engraver, 48, Essex-street, Strand, London, W.C.
Hill, Edward, electric bell fitter, 111, Steelhouse-lane, Birmingham.
Hill, J., mining engineer, Ashmore Lodge, Wednesfield.
Hill, James, manufacturing chemist, 288, Argyle-street, Glasgow.
Hill, R., wire drawer, Newport Wire and Rolling Mills, Middlesborough.
Hill, Samuel, bolt and nut maker, Castle-street, Stalybridge.
Hill, T., wire drawer, Clifton-bridge, Brighouse.
Hill, Thomas, electro-plater, 47, Norfolk-street, Sheffield.
HILL, W., brass caster, 453, New John-street West, Birmingham.
Hill, Zachariah, india rubber manufacturer and dealer, 1, Ann-street, Islington, London, N.
Hillcoat & Allen, electrolier, chandelier manufacturers, 27, Clarence-street, Glasgow.
Hille, Gus. L., india rubber manufacturer, 63, Finsbury Pavement, London, E.C.
Hilliard, W. B., & Sons, mathematical instrument makers, 65, Renfield-street, Glasgow.
Hills, Frank C., & Co., sulphuric acid manufacturers, 17, Philpot-lane, London, E.C.
Hills, Menke, & Co., metal merchants, 8, Great Charles-street, Birmingham.
Hills & Sons, tallow merchants, Regent-street, Deptford, S.E.
Hills, David, mechanical engineeer, 44, John-street, Liverpool-road, London, N.
Hilton, Rider, & Co., oil merchants, 143, Great Suffolk-street, London, S.E.
Hilton, Wm. Hy., designer, 41, Great Hampton-street, Birmingham.
Hind, H., & Son, shafting manufacturers, 62, Blackfriars-road, London, S.E.; and at Nottingham.
HINDLEY, E. S., engineer, boiler maker, and iron founder, Bourton, Dorset; London office, 52, Queen Victoria-street, London, E.C.
HINKS, JAMES, & SON, electrolier lamp manufacturers, 91 to 96, Great Hampton-st., Birmingham.
Hinks, Thomas, & Sons, manufacturing chemists, 42, Little Green-lane, Small-heath, Birmingham.
Hinrichs, C. F. A., electrolier lamp and lustre manufacturer, 42 & 44, Cannon-street, London, E.C.
HINTON, THOMAS, electro-plater (established 1864), 48, Northwood-street, Birmingham.
Hintz, Julius, electrician, 30, Liverpool-street, London, E.C.
Hipkins, Edward, iron founder, Regent Foundry, Allcock-street, Deritend, Birmingham.
Hipwell, Thomas, refiner, Norton-street, Balsall-heath, Birmingham.
Hirons, Plante, & Co., electro-plate manufacturers and dealers, 54, Frederick-st., Newhall-hill, B'ham.
Hirsch, J. F., oil refiner, Copenhagen-place, Limehouse, London, E.
Hirschhorn, J., electrolier, 81, Queen Victoria-street, London, E.C.
Hirst & Cooke, lead manufacturers, Raywell-street Lead Works, Hull.
Hirst, C., wire drawer, Toft's Mill, Cleckheaton, Yorkshire.
Hitchins, T. F., Bedford & Co., metal merchants, 16, Rood-lane, London, E.C.
Hitchcock, Thomas John, manufacturing chemist, 145, Houston-street, Glasgow.
Hoare, R., copper merchant, Sutton-wharf, Plymouth.
Hobbs, Hart & Co., electric lock manufacturers, 76, Cheapside, London, E.C.
Hobbs, Hubert Lancaster, analytical chemist, 11, Billiter-square, London, E.C.
Hobday, E., wire worker, Lansome-street, Worcester.
Hobday, William, electro-gilder and plater, 12, Kenion-street, Birmingham.
Hobson, H., & Son, electro-plate manufacturers and dealers, 67, Hounsditch, London, E.
HOBSON, H., F.R.M.S., analytical chemist, 17, Regent-street, London, S.W.
Hobson, C., earthenware manufacturer, Albert-street, Burslem, Stafford.
Hodd, R., & Son, electro-gilders and platers, 30, Hatton-garden, London, E.C.
Hodge & Co., glass shade makers, 100 and 101, Hatton-garden, London, E.C.
Hodge, S.. & Sons, mechanical engineers, 104, West Ferry-road, London, E.

Digitized by Google

Hodges, Butler & Dale, stoneware drain pipe manufacturers, Blackwall-lane, East Greenwich, London, S.E.
Hodges, Rowland, brass founder, 12, Frederick-street, Newhall-hill, Birmingham.
Hodgetts, John, metal merchant and dealer, 47, Northwood-street, Birmingham.
Hodgkin, J. E., mechanical engineer, 63, Queen Victoria-street, London, E.C.
Hodson, Harry, & Co., oil merchants, 94, Upper Thames-street, London, E.C.
Hodson, J. rope and twine manufacturer, 28, Whitelands-road, Dukinfield.
Hoe, R., & Co., mechanical engineers, Tudor-street, Whitefriars, London, E.C.
Hogben, Thomas, air-tight glass case maker, 3, City-road, London, E.C.
HOLBORN LAMP WORKS, electrolier lamp and lustre manufacturers. Manufacturers of all kinds of reflecting lamps for shop windows, 116, High Holborn, London, W.C.
Holcroft, J. & C., galvanizers, Portfield Iron Works, Dudley Port, Tipton, and at 139, Cannon-street, London, E.C.
Holdaway, Isaac Horatio, wood engraver, 64, Fleet-street, London, E.C.
Holcroft, W., earthenware manufacturer, George-street, Tunstall, Stafford.
Holden & Co., manufacturing chemists, Whitehouse, Erdington, Birmingham.
Holder, Joseph, iron founder, River-street, Deritend, Birmingham.
Holdsworth, E. & H., oil merchants, 26, Worship-street, London, E.C.
Holdsworth, H., & Son, electro-plate manufacturers and dealers, 176, Bramall-lane, Sheffield.
Holdsworth & Marsdet, wire drawers, Rawfold Wire Works, Chickheaton, Yorkshire.
HOLDSWORTH, SAMUEL, jewel-hole maker. Jewels for telegraph purposes, &c., 54, Spencer-steert, Clerkenwell, London, E.C.
Holdsworth, Thomas, file manufacturer, Oughtibridge, Sheffield.
Holdsworth, Thos, W., nickle merchant, 31 and 32, Steelhouse-lane, Birmingham.
Holdsworth, William, machine tool maker, Leeds New Foundry, Black Bull-street, Leeds.
Hole, Edward, & Co., machine strap makers, 36, Seething-lane, London, E.C.
Holgate & Co., machine strap makers, 33, Great Dover-street, Boro', London, S.E.
HOLIDAY, RICHARD, high-speed engine maker, Newton-street Works, Newton-street, Birmingham.
Holland & Green, earthenware manufacturers, Stafford-street, Longton, Stafford.
Holland, W., & Co., india-rubber manufacturers, 207, Edgware-road, London, W.
Halliday, Read & Sons, (Wm. Walker, Manager,) manufacturing chemists, 188, West George-street, Glasgow.
Holliday, Richard, wire worker and weaver, 31A, Beaufort-street, Chelsea, London, S.W.
Hollidge, Wm., wood engraver, 5, Fetter-lane, London. E.C.
Hollinshead & Kirkham, earthenware manufacturers, Woodland Pottery, Turnstall, Stafford.
Hollins, W., & Co., silk spinners, 9, Fletcher-gate, Nottingham.
Hollis, C., & Son, electro-plate manufacturers and dealers, 3, Mary Ann-street, Birmingham.
HOLLOWAY, EDWIN, Agent for Wm. Rickard, Derby, 2, Gutter-lane, Cheapside, London, E.C.
Holloway, Fredk., lead merchant, 341A, Kingsland-road, London, E.
Hollyoak, W. H., electric bell fitter, 3, Temple-street, Wolverhampton.
Hollywood, W., asbestos merchant, 15, Margaret-street, High John-street, Glasgow.
Holman, Rogers, Mitchell & Co., antimony refiners & dealers, City-buildings, Old Hall-st., Liverpool.
Holmes, Plant & Madew, earthenware manufacturers, Sylvester Pottery, Burslem, Stafford.
Holmes, Stonier & Hollinshead, earthenware manufacturers, High-street, Hanley, Stafford.
Holmes, W. C.. & Co., gas engineers, Bradford-road, Huddersfield.
Holmes, W. C., & Co., valve makers, 80, Cannon-street, London, E.C.
Holmes, A., zinc manufacturer, 52, Nelson-street, S. S., Glasgow.
Holmes, H. C., electric bell fitter, 65, Grove-street, Commercial-road, East, London, E.
Holmes, J. R., ships telegraphs, 175, St. Vincent-street, Glasgow.
Holmes, Samuel, optician, 42, Dean-street, Soho, London, W.
Holt Brothers, rivet makers, 72, King William-street, London, E.C. Geo. W. Share & Co., Agents.
Holt, J., wine-drawer, School-street Works, Toad-lane, Rochdale, Lancashire.
Holt, J. H., drain pipe manufacturer, Moss-lane, Altrincham, Cheshire.
Holt, T., & Co., mechanical-engineers, 84, Cannon-street, London, E.C.
Holtzapffel & Co., mathmetical instrument makers, 64, Charing Cross, London, S.W.
Homan & Rodgers, mechanical engineers, 17, Gracechurch-street, London, E.C.
Home, Foreign & Colonial Electric Light and Power Share Trust Co., electric light and power, 88, Bishopsgate-street, Within, London, E.C.
Homer, C. J., mining engineer, Ivy-house, Bucknall-road, Hanley, Stafford.
Homer, James, electro-plated ware manufacturer, 97, Sycamore-road, Aston, Birmingham.
Homer, James F., glass manufacturer, 78 and 79, Cecil-street, Birmingham.
Homfray & Co., railway signal manufacturers, 48, City-road, London, E.C.
Homfray & Co., electric bell fitters, 9, York-street, Glasgow.
Honey, Wm. Hy., electrolier lamp and lustre manufacturer, 261 and 263, Regent-street, London, W.
Hood & Co., brass and copper founders, Deptford-green, London, S.E.
Hood, W. & W., steel manufacturers and merchants, 72, George-square, Glasgow.

Digitized by Google

Hoodlass, J. R., draughtsman, 22, Wharncliffe-street, Rotherham.
Hooke, David Bramwell, india rubber manufacturer, 83, Upper Thames-street, London, E.C.
Hookham, H. J., & Sons, braziers, 175, Charles Henry-street, Birmingham.
Hooper & Son, parchment makers, 69, Ludgate-hill, London, E.C.
Hooper, Peter, screw manufacturer, 29, Morville-street, Ladywood, Birmingham.
Hooper's Telegraph and India Rubber Works, 31, Lombard-street, London, E.C.
Hooson & Rawsons, telegraph wire manufacturers, Old Baths, Peru-street, Adelphi, Salford, Manchester.
Hope, Alex., jun., & Co., manufacturing chemist, Coatbridge-street, Port Dundas, Glasgow.
Hope & Carter, earthenware manufacturers, Fountain-place, Burslem, Stafford.
Hope & Co., oil refiners, 54, Bernard-street, Leith.
Hope Foundry & Engineering Co., iron founders, West Bromwich, Birmingham.
Hope Iron, Steel & Wire Company, Limited, wire drawers, Dallam-lane, Warrington.
Hope, G., electro-plate and nickel-silver spoon and fork manufacturer, 13, Hylton-street, Birmingham.
Hope, H., electro-gilder and plater, 26, St. John's-lane, Clerkenwell, London, E.C.
Hope, Henry, iron founder, 55, Lionel-street, Birmingham.
Hope, J. A., steel manufacturer and merchant, 24, Bath-street, Glasgow.
Hopkins, Gilkes & Co., Tees Engine Works, steam engine makers, Middlesborough.
Hopkins, William & Son, brass founders, Seymour Works, Albert-street, High-street, Birmingham.
Hopkins, F., spring maker, 30, Noble-street, Goswell-road, London, E.C.
Hopkins, Geo., mechanical engineer, 154, St. John-street, London, E.C.
Hopkins, Jas., glass shade maker, 192, Walworth-road, London, S.E.
Hopkins, Job, brazier, 20, Richard-street, Dartmouth-street, Birmingham.
Hopkins, Joseph, electro-plated ware manufacturer, 23, Augusta-street, Birmingham.
Hopkinson & Cope, mechanical engineers, Farringdon-road, London, E.C.
Hopkinson, J., & Co., steam engine boiler makers, Britannia Works, Huddersfield.
HOPKINSON, J., F.R.S., electrical engineer (consulting), 4, Westminster-chambers, Victoria-st., S.W.
Horn, Ralph, rope and twine manufacturer, Muslin-street, Newton-moor, Manchester.
Horn, Thomas, mechanical engineer, 19, and 20, Grosvenor-road, London, S.W.
Horn, William P., analytical chemist, 21A, Broad-street.—The Oxford School of Chemistry, Birmingham.
Horne, Jas., & Co., mechanical engineers, 14, Whitechapel High-street, London, E.
Horne & Thornewaite, electrical instrument makers, 416, Strand, W.C.
Horne, Wm., mechanical engineer, 36, King William-street, London, E.C.
Horner & Co., opticians, 70, Hatton-garden, London, E.C.
Hornsby, R., & Sons, steam engine makers, 84, Lombard-street, London, E.C.
Horseley & Co., Limited, mechanical engineers, 6, Westminster-chambers, London, S.W.
Horsfall, Mrs. E., wire drawer, 25½, Market-hill, Barnsley, Yorkshire.
Horton, John, & Co., brass founders, Oxford Brass Works, Bailey-street, Sheffield.
Horton, J. & W., iron tank manufacturers, Etna Works, Smethwick, Birmingham.
Horton & Son, steam engine boiler makers, 63, Park-street, Borough-market, London, S.E.
Horton, Edward, electrolier chandelier maker, 239, Bradford-street, Birmingham.
Horton, Thomas, steam engine boiler manufacturer, Vittoria-street, Smethwick, Birmingham.
Horwood, Chas., mechanical engineer, 7, Crosby-row, Borough, London, S.E.
Hoskins & Redford, electric bell fitters, 34, Bridlesmith-gate, Nottingham.
Hoskins, T. & J., mechanical engineers, 53, Parker's-row, London, S.E.
Houchin, R., mechanical engineer, 13, Bridport-place, Hoxton, London, N.
HOUGHTON, G., & SON, glass cells (battery) manufacturers, 89, High Holborn, London, W.C.
Houghton, Jas., & Son, oil merchants, 27, Bartholomew-close, London, E.C.
Houghton, W. D., wire drawer, Sankey Wire Mills, Sankey-bridge, Warrington.
Houghton, —, telegraph engineer, London, Brighton and South Coast Railway Co., London Bridge Station, London, S.E.
Houlder, W., Son & Co., sulphuric acid manufacturers, 9, Mincing-lane, London, E.C.
Houston, William, wheel-cutter, 45, John-street, Glasgow.
How, James & Co., chemical appliance manufacturers, 73, Farringdon-street, London, E.C.
Howard, J. & F., steam engine makers, 69, Cornhill, London, E.C.
Howard, Robert, & Co., lead merchants, Deritend, Birmingham,
Howard, Daniel, steam engine boiler manufacturer, West Bromwich, Birmingham.
Howard, Wm. Hy., wire worker and weaver, 23, Ossulston-street, London, N.W.
Howarth & Cryer, lighthouse apparatus manufacturers, Bridgman-street, Bolton.
Howarth, David, mechanical engineer, 11, Queen Victoria-street, London, E.C.
Howat, Wm., bolt and screw maker, Victoria Bolt and Rivet Works, Cranstonhill, Glasgow.
Howe Machine Co., Ld. (The), (the "Universal"), electro motor manufacturers, Avenue-street, Bridgeton.
Howes & Isaac, opticians, 85, Hattton Garden, London, E.C.
Howe, Wm., & Co., oil merchants, 6, Gt. Winchester-street, London, E.C.
Howe, Wm , & Co., metal merchants, 4, St. Helen's-place, London, E.C.
Howes Bros., cotton waste merchants, 30, Tabernacle-walk, London, E.C.

Digitized by Google

Howett, Samuel, air-tight glass case maker, 4, Lindley-street, Sidney-street, Mile End, London, E.
Howitt, Robt. Thos., charcoal maker and dealer, 82, Upper Whitecross-street, London, E.C.
Howson & Wilson, consulting engineers, 2, Exchange-place, Scarborough.
Hubball, Joseph, brass caster, 305, Summer-lane, Birmingham.
Hubbard, John, wire worker and weaver, 162A, City-road, London, E.C.
Hubbuck, T., & Son, boiler composition makers, &c., 24, Lime-street, London, E.C.
Hudson, Alfred, & Co., mathematical instrument makers, 34, Hatton-garden, London, E.C.
Hudson, Edmunds, & Co., tube makers, Sheepcote-street Works, Birmingham.
Hudson, W., & Co., machine tool makers, 15, Devonshire-street, London, E.
Hudson & Son, mathematical instrument makers, Stockwell-street, Greenwich, London, S.E.
Hudson, Albert George, glass bender, 64, Sutton-street East, London, E.
Hudson, Thos., boiler maker, Sheepford Boiler Works, Coatbridge, Glasgow.
Hudswell, Clarke, & Co., pulley makers, Railway Foundry, Leeds.
Huett, Thos., brass and copper founder, 23 and 25, Three Colt-street, Limehouse, London, E.
Hughes, Chemery & Co., spelter manufacturers, 83, Gracechurch-street, London, E.C.
Hughes, Henry, & Son, mathematical instrument makers, 59, Fenchurch-street, London, E.C.
Hughes, J., & Sons, leather driving band makers, 217, Great Dover-street, London, S.E.
HUGHES, JOHN, & JOSEPH, metal merchants and dealers, 76, Aston-street, Birmingham.
Hughes, John Herbert, modeller, 239, Church-road, Higher Tranmere, Birkenhead.
Hughes' Locomotive and Tramway Engine Works, mechanical engineers, 4, Copthall-buildings, Throgmorton-street, London, E.C.
Hughes, Professor D. E., electrician, care of London Joint Stock Bank, 59, Pall Mall, London, S.W.
Hughes, George, analytical chemist, 79, Mark-lane, London, E.C.
Hughes, John, F.C.S., analytical chemist, 79, Mark-lane, London, E.C.
Hughes, Richard Hugh, electrolier lamp and lustre manufacturer, 96, Hatton-garden, London, E.C.
Hughes, T., earthenware manufacturer, Waterloo-road, Burslem, Staffordshire.
Hughes, Wm. Chas., optician, 151, Hoxton-street, London, N.
Huggins, John, iron tube maker, Watery-lane, Birmingham.
Huggins, William, iron tube maker, 107, Glover-street, Birmingham.
Hukin & Heath, electro-plate manufacturers and dealers, 19, Charterhouse-street, London, E.C.
Hulett, D., & Co., electrolier lamp, lustre, &c., manufacturers, sole makers of the Berly and Hulett patent sliding contact suspension, applicable to every system of electric lighting, 55, High Holborn, London, W.C.
Hull, J. F., & Co., driving band makers, 5, New Brown-street, Manchester.
Hulme & Lund, valve manufacturers, Manchester.
Hulstrom, J., mechanical engineer, 29, Great Windmill-street, London, W.
Hume, James S., & Co., boiler makers, Portman-street, Glasgow.
Hume, Wm., wire rope manufacturers, 195, Buchanan-street, Glasgow.
HUMM, M., electrician, 727, Commercial-road, London, E.
Humphries, R., electro-gilder and plater, 52, Seymour-place, Bryanston-square, London, W.
Humphrey Bros., coppersmiths and braziers, 38, St. John-street-road, London, E.C.
Humphreys, George Humphrey, tool maker, 61½, Constitution-hill, Birmingham.
Humphreys, J. C., galvanizer, 34, New Bridge-street, Blackfriars, London, E.C.
Hungarian Copper Co., Limited, 5, Copthal-buildings, Throgmorton-street, London, E.C.
Hunning Bros., lead merchants, 158, Holloway-road, London, N.
Hunt, H., & F., galvanizers and galvanized iron and wire manufacturers, Pountney-street, W'hampton.
Hunt, J., & Co., electrolier chandelier manufacturers, Hope Works, Sampson-road North, Birmingham.
Hunt, Mitton, & Co., brass founders and casters; steam engine boiler fittings manufacturers and mechanical engineers, 11, Queen Victoria-street, and 14 and 15, Oozells-street, Birmingham.
Hunt, Reynolds, & Co., electro-plate and nickel-silver spoon and fork manfs., Peel-street, W'hampton.
Hunt, W., & Sons, draining tool manufacturers, Beade's Iron Works, Oldbury.
Hunt, W., & Sons, manufacturing chemists, Alkali Works, Lea-bridge, Tipton, Stafford.
Hunt & Sacré, mechanical engineers, 26, Parliament-street, London, S.W.
Hunt, James Henry, electro-plated ware manufacturer, 3, Regent-parade, Birmingham.
Hunter & English, high speed engine makers (the Willan's), 202, Bow-road, London, E.
Hunter & Sands, mathematical instrument makers, 20, Cranbourn-street, London, W.C.
Hunter, James & Walter, brass and copper founders, 54, High-street, Bromley, London, E.
Hunter, G., grease manufacturer, Cumberland-street, Hull.
Hunter, John, electric bell fitter, Westmoreland-street, Glasgow.
Huntington Copper & Sulphur Co., Limited, 149, Hope-street, Glasgow.
Huntley, Boorne, & Stevens, electro gilders and platers, 128, London-street, Reading.
Huntsman, B., steel manufacturer, Church-street, Attercliffe, Sheffield.
Hurlet & Campsie Alum Co., manufacturing chemists, 115, Wellington-street, Glasgow.
Hurney, J., lightning conductor manufacturer, 10, Westfield-terrace, Sheffield.
Hurton, Henry, rope and twine manufacturer, 21, Brougham-street, Tranmere, Birkenhead.

Digitized by Google

Hus, Henry, electrolier lamp and lustre manufacturer, 323B, Kennington-road, London, S.E.
Husbands, José D., electrical inventor, 31, Queen Victoria-street, London, E.C.
Hutcheson & Co., wire rope manufacturer, 9, Oswald-street, Glasgow.
Hutchinson, A., & Co., india rubber driving band makers, 3, Great Winchester-street, London, E.C.
Hutchinson, Thos., electrolier, 67, Grainger-street, Newcastle.
Hutchinson, H., & Son, lead pipe manufacturers, Berwerley, Pateley-bridge, Leeds.
Hutchison & Co., tube makers, 9, Oswald-street, Glasgow.
Hutson & Corbett, boiler makers, Kelvinhaugh-street, Glasgow.
Hutton & Co., machine tool makers, 1, Scott's-yard, Bush-lane, London, E.C.
Hutton, W., & Sons, electro-plate manufs. and dealers, 13, Thavie's-inn, Holborn-circus, London, E.C.
Hutton, W. S., mechanical engineer, 1, Scott's-yard, Bush-lane, London, E.C.
Hyam, D., & Co., electro-plate manufacturers and dealers, 58, Houndsditch, London, E.
Hyde Park Galvanizing Works, Hyde Park-street, Glasgow.
Hyde Park Locomotive Works, Springburn, Glasgow.
Hyde Park Pottery, pottery manufacturers, 45, Hyde Park-street, Glasgow.
Hyde, J., iron wire manufacturer, 14, George-street Parade, Birmingham.
Hyde, J., manufacturing chemist, High-street, Wednesfield.
Hyde, Thomas, mechanical engineer, Hatton-garden, London, E.C.
Hydes & Wigfull, Limited, wire drawers, Stanley-street, Wicker, Sheffield.
Hyland, Thos., & Co., manufacturing chemists, 65, Rose-street South, Glasgow.
Hyman, David, metal merchant, Iron Wharf, Thornhill-bridge, 135, Caledonian-road, London, N.
Hymans, H., parchment maker and dealer, 17, Redman's-road, Stepney-green, London, E.

I.

Ibberson & Stewart Bros., electric bell fitters, Upper Market-square, Hanley.
Ibbotson Bros. & Co., Limited, file manufacturers, Globe Steel Works, Green-lane, Sheffield, and 4, Westminster-chambers, Victoria-street, Westminster, London, S.W. Sole manufacturers of the celebrated "Globe" files.
Ibbotson, Richard, steel manufacturer, Shoreham Works, 24, Norfolk-lane, and 185, Norfolk-st., Sheffield.
Ide, T., & W., glass benders, Brook-street, Ratcliff, London, E.
Igonel, F., telegraph engineer, 25, Richmond-street, St. Luke's, London, E.C.
Iles, Benjamin, & Co., oil merchants, High-street, Stratford, London, E.
Illidge, S., & Son, brass founders, Alexandria Foundry, Wolverhampton.
Illingworth, David, cotton driving band manufacturer, Bridge-street, Stalybridge.
Illston, G. A., 8, designer, Clifton-crescent, Rotherham.
Imperial Steam Pump and Engineering Co. (The), pulley makers, Smethwick, Birmingham.
Imperial Tube Co., Birmingham; Works, Grove-lane, Smethwick, Birmingham.
Imperial Wire Co. (Nettlefolds, Limited), Cranford-street, Smethwick, Birmingham.
Imrie, D., wire manufacturer, Bank-chambers, Temple-street, Swansea.
Impey, Wm., iron founder, Atlas Foundry, Bridge-st. West, Birmingham.
Indestructable Packing Co. (The)—patent metal packing—East India Dock-road, London, E.
India Rubber, Gutta Percha & Telegraph Works Co., Limited, 106, Cannon-street, London. E.C. Flexible gas, speaking, telephone, &c., tube makers, india rubber manufacturers and dealers, telegraph engineers, torpedo manufacturers, wire and submarine cable manufacturers, driving band makers, &c.
Indo-European Co. (Telegraph), Limited, 18, Old Broad-street, and 9, East India-avenue, London, E.C.
Ingham, E. & W., steam engine makers, 11, Queen-street, Oldham.
Inglis, J., copper merchant, 33, Dock-street, Dundee.
Ingram, J. G., & Son, india-rubber manufacturers and dealers, Hackney-wick, London, E.
Ingram & Kemp, electrolier lamp and lustre manufacturers, 103, Hatton-garden, London, E.C.
Ingram, John, electro-gilder and plater, 126, Suffolk-street, Birmingham.
Inman, Stones & Co., lightning conductor manufacturers, Victoria Mills, Brighouse.
Inman, Tom, steel manufacturer, Britannia Steel Works, Creswick-walk, Pond-hill, and 48, Norfolk-road, Park, Sheffield.
Institution of Civil Engineers (The)—learned and scientific—25, Great George-street, London, S.W.
INSTITUTION OF MECHANICAL ENGINEERS (THE)—learned and scientific—10, Victoria-chambers, Victoria-street, London, S.W.
Insulite Co., Limited (Frederick Saunders, secretary), electrical instrument makers, 11, Delahay-street, Westminster, London, S.W.
International Electric Railway Co. (Mr. Binks, general manager), Crystal Palace, London, S.E.
International Machine Co. (The)—screw, terminal, and small accessories—118, White-horse-street, Commercial-road, London, E.
Ireland, Arthur George, electro-gilder and plater, 83, Great Hampton-street, Birmingham.
IRON WIRE, WIRE ROPE & FENCING CO. (THE), 2, Poet's-corner, Westminster, London, S.W.
Ironmonger, Thos., & Co., steam packing makers, 63, Bishopsgate-street Within, London, E.C.

Digitized by Google

Irons, Clarke & Co., wood engravers, 23, Bouverie-street, London, E.C.
Irons, W. H., tube and iron-plate maker, 18 & 19, Upper Ground-street, Blackfriars-road, London, S.E.
Irvine Chemical Co., Limited (Geo. Breen Comm, manager and secretary), 116, St. Vincent-st., Glasgow.
Irwell India Rubber & Gutta Percha Works, Limited, 6, Billiter-street, London, E.C.
Irwin & Campbell, coppersmiths, 13, Norfolk-street, South-side, Glasgow.
Irwin, John, ivory turner, Fletcher's-entry, Newcastle.
Isaac, Druiff & Co., opticians, 63, Hatton-garden, London, E.C.
Isca Foundry Co., mechanical engineers, 10, Bush-lane, Cannon-street, London, E.C.
Isles, J., lamp post manufacturer, Prospect Foundry, Stanningley, Leeds.
Ismay, John, & Co., lead manufacturers, Northumberland Lead Works, Newcastle-on-Tyne.
Ismay, John, & Co., white lead manufacturers, Ouseburn, Lime-street, Newcastle.
Italian Sulphur Co., 4, Finsbury-circus, London, E.C.
IZANT, F., electrical instrument maker, 50, Kenton-street, Brunswick-square, London, W.C.

J.

Jablochkoff Electric Light and Power Company, Limited, electric light and power contractors, 1 and 2, Great Winchester-street, London, E.C.
Jach, Joseph, manufacturing chemist, North British Oil and Grease Works, Great Eastern-st., Glasgow.
Jackson, F. W., and Co., engineers, Mansfield-street, Kingsland-road, London, E.
Jackson and Graham, bronzists, 70 to 86, Oxford-street, London, W.
Jackson, William, and Sons, steel manufacturers, Sheaf Island Works, Pond-hill, Sheffield.
Jackson, W., and Son, wire drawers and tube makers, 17, Sun-street, Finsbury, London, E.C.
Jacobs, H., model maker, 29, Penrose-street, Walworth, London, S.E.
Jacquemin Brothers, opticians, 42, Hatton-garden, London, E.C.
Jackson, Edgar, analytical chemist, 106, Queen Victoria-street, London, E.C.
Jackson, Frederick, tool maker, 126, Pritchett-street, Birmingham.
Jackson, L., cotton driving band maker, Simmondley, Glossop.
Jagenberg Brothers, parchment makers and dealers, 2, Lime-street-square, London, E.C.
Jagger, J. and G., wire drawers, Old Wire Mills, Thurgoland, Sheffield.
Jamaiker Brothers, leather driving band makers, 54, Church-street, Minories, London, E.
James, C., and Co., manganese merchants, 8, Laurence Pountney-hill, Cannon-street, London, E.C.
James and Co., white lead manufacturers, Ouseburn Lead Works, Newcastle.
James and Co., lead manufacturers, 28, Queen-street, Cannon-street, London, E.C.
James, E., Rowe and Co., lead pipe manufacturers, 192, High-street, Exeter.
James and Rosewall, lead pipe manufacturers, Octagon-street, Plymouth.
James, G. F., wire worker and weaver, Horseley-fields, Wolverhampton.
James, Jabez, high speed engine maker, 40, Princes-street, Commercial-road, Lambeth, London, S.E. Agent for Böhler Brothers and Co.
James, John, chemical merchant, 25, Walbrook, London, E.C.
James Mrs., wire worker, 97, High-street, Dudley.
James, W., lamp lustre, &c., manufacturer, 201, Broad-street, Birmingham.
James, William, electric bell fitter, 13, Porchester-road, London, W.
JAMESON and SCHAEFFER, consulting engineers and patent agents, Akenside-hill and Printing-court-chambers, Newcastle-on-Tyne.
Jameson, Robert, wire worker and weaver, 262, Upper-street, Islington, London, N.
Jameson, Andrew, C.E., F.R.S., &c., teacher of telegraphy and electrical sciences, principal of the College of Science and Art, Glasgow.
Janes, Francis D., and Son, wire workers and weavers, 101, Aldersgate-street, London, E.C.
Janson, C., Son, and Co., mechanical engineers, Darlington.
Jaques, W., mechanical engineer, 100, Snow's-fields, Bermondsey, London, S.E.
JARMAN, A. J., electrical engineer, 25, Richmond-street, St. Luke's, London, E.C.
Jarratt, John, electro gilder and plater, 2, Wenlock-road, City-road, London, N.
Jarrow Hill Chemical Company, chemcal manufacturers, Lombard-street, Newcastle.
Jages, Potter, and Wass, model makers, 32, Dun's-lane, Leicester.
Jeakes, C., and Co., mechanical engineers, 51, Great Russell-street, Bloomsbury, London, W.C.
Jeal, John and William, electrolier and lamp and lustre manufacturers, 80 and 83, Old-st., London, E.C.
Jeffreys, Charles, airtight glass case maker, 103, Hatton-garden, London, E.C.
Jeffries, J. H., engraver, 119, Newhall-street, Birmingham.
Jenkins Brothers, manganese merchants, 8, Goree-piazzas, Liverpool.
Jenkins, Brothers, meteorological instrument makers, 19, Remington-street, City-road, London, N.
Jenkins, C., and Co., steam engine makers, 131 and 133, Union-street, Borough, London, S.E.
Jenkins, Robert, and Co., steam engine boiler makers, Masbro' Boiler Works, Wortley-road, Masbro,' Rotherham.

Digitized by Google

Jenkins, Thomas and Leonard, telegraph wire manufacturers, 42, George-street-parade, Birmingham.
Jenkins, W., lightning conductor manufacturer, 28, South-parade, Leamington.
Jennens, Joseph and Thomas E., gauge makers, 64, Villa-street, Birmingham.
JENNINGS, GEORGE, electrical engineer, Palace Wharf, 67, Lambeth Palace-road, London, S.E.
Jennings, J., manganese merchant, 1, Exchange-place, Middlesbrough.
Jennings, James, brass caster, 11, Great Russell-street, Birmingham.
Jennings, John, cotton waste merchant, 1, Guildhall-chambers, London, E.C.
Jennings, Thomas S., wire worker and weaver, 22, Farringdon-road, London, E.C.
JENSON, H., and Co., electricians, 78, Wardour-street, London, W.
Jessop, J., and Son, steam engine makers, Leicester.
Jessop, William, and Sons, Limited, steel manufacturers, Brightside Works, Brightside-lane, Sheffield.
Jewitt, Keats and Reynolds, draughtsmen, 20, Clifton-villas, Camden-square, London, N.W.
Jeyes and Co., oil merchants, Catherine-street, Aston, Birmingham.
Jobling, James, chemical agent, 11, Newgate-street, Newcastle.
Jobling, J. A., manganese merchant, 13, Moseley-street, Newcastle-on-Tyne.
Jobson Brothers, telegraph engineers and contractors, Phœnix-works, Birmingham.
Johnson Brothers, grease manufacturers, Cleveland Works, Air-street, Sulcoates, Hull.
Johnson, Christopher & Co., steel manufacturers, Western Works, and Western Steel Works, Portobello-street, Sheffield.
Johnson & Cole, oil merchants, Park-street, Riley-street, Bermondsey, London, S.E.
Johnson & Co., electro plated ware manufacturers, Crown Works, Aston-road, Birmingham.
Johnson & Co., lead manufacturers, 11, Gloucester-street, Clerkenwell, London, E.C.
Johnson, Geo. & Son, melters, 174 and 175, Bishopsgate Without, London, E.C.
Johnson, John, & Sons, platinum, retort, and boiler manufacturers, 23, Cross-street, London, E.C.
Johnson & McBean, india rubber manufacturers and gutta percha merchants, 4, Wellington-st., Glasgow.
Johnson, Matthey & Co., manufacturing and metallurgical chemists, Hatton-garden, London, E.C.
Johnson & Phillips, telegraph and electric light engineers, makers of telegraphic electrical instruments, carbons, insulators, &c., also wire coverers, 14, Union-court, Old Broad-street, London, E.C.
Johnson, R. Clapham & Morris, lightning conductor manufacturerer, 23, Cheapside, Liverpool, and Lever-street, Manchester.
Johnson, Richard & Nephew, wire manufacturers, drawers and coverers, 8, Great Winchester-street, London, E.C., and Bradford Iron Works, Bradford.
Johnson, William & Co., rolling mills and rolled metal manufacturers, Montgomery-street, Birmingham.
Johnson, W. W. & R. & Sons, tin and foil manufacturers, Limehouse, London, E.
Johnson, Benjamin, screw manufacturer, Napier Joint and Shovel Works, Napier-street, Sheffield.
Johnson, C., mica merchants, 87, New Oxford-street, London, W.C.
Johnson, G. W., electro gilder and plater, 21, Brownlow-hill, Liverpool.
Johnson, Henry, bolt and nut manufacturer, Exchange-works, Egerton-street, Sheffield.
Johnson, H., mining engineer, 5, Trindle-road, Dudley.
Johnson, Mrs. Jane, tool maker, 32, Whittall-street, Birmingham.
Johnson, Richard, wire netting manufacturer, 8, Great Winchester-street, London, E.C.
Johnson, Thomas, bolt and nut manufacturer, Ecclesfield, Sheffield.
JOHNSON, T. B., wire drawer, 4, Charles-street, City-road, London, E.C.
Johnson, William, Napier Screw and Rivet Works, Napier-street, Sheffield.
Johnson, Wm., optician, 188, Tottenham Court-road, London, W.
Johnston & Co., electricians and electrical specialities, 189, Wardour-street, London, W.
Johnston, Henry & Co., drain pipe (stoneware) manufacturers, 185, Cannon-street-road, London, E.
Johnston, Hewitson, Wilson & Co., mechanical engineers, Boundary-lane, Walworth, London, S.E.
Johnston, John, steam engine boiler maker, Attercliffe Boiler Works, Pothouse-lane and Old Hall-road, Attercliffe-common, Sheffield.
Johnston, Park & Co., electrolier chandelier manufacturers, 78, Gordon-street, Glasgow.
Johnstone, James, wire workers and wire cloth manufacturers, 51, St. Vincent-street, Glasgow.
Jolley, James, coppersmith, 14, Bridge-street, Runcorn.
JONAS & COLVER, magnetic steel manufacturers, Continental Steel Works, Sheffield.
Jones & Askin, brass founders, 22, 23, and 24, Lower Loveday-street, Birmingham.
Jones & Aswood, ironfounders, Stourbridge.
Jones & Barclay, electrolier lamp and chandelier manufacturers, 1 and 2, Cross-street, Birmingham.
Jones Bros. & Co., galvanizers and galvanizers' iron wire manufacturers, Ablow-street, Wolverhampton.
Jones, Bros. & Co., tin merchants, 16, Devonshire-street, Bishopsgate Without, London, E.
Jones & Co., mechanical engineers, 156, Goswell-road, London, E.C.
Jones, Frederick, & Co., composition makers, &c., Perron-street, Ryland-road, Kentish-town, London, N.W.
Jones, H., & Co., electro-plate and nickel silver spoon and fork manufactory, 55, Great Hampton-street, Birmingham.
Jones & Mitchell, tube makers, Saltley Works, Saltley, Birmingham.

Digitized by Google

Jones & Rooke, wire drawers, 60, Northwood-street, Birmingham.
Jordan, T. B., & Son, mechanical engineers, 52, Gracechurch-street, London, E.C.
Jones & Willis, electric light fitting manufacturers and fitters, 43, Great Russell-street, London, W.C.
Jones, W., & Co., manufacturing chemists, Fleet-road, Middlesbro'.
Jones, William and Thomas, & Co., oil merchants, 98, Southwark-street, London, S.E.
Jones, A. W., mechanical engineer, 9, New Broad-street. London, E.C.
Jones, D., zinc worker, 62, Manvers-street, Nottingham.
Jones, E., earthenware manufacturer, Hill Top Pottery, Church Gresley, Burton-on-Trent.
Jones, E., mining engineer, Oakwood, West Bromwich.
Jones, E. W. T., F.I.C., F.C.S., analytical chemist, 10, Victoria-street, Wolverhampton,
Jones, George, iron founder, 90, Lionel-street, Birmingham.
Jones, Henry John, brass founder, 35, Northwood-street, Birmingham.
Jones, J., galvanizer, Beehive Works, Tame-street, Bilston, Stafford.
Jones, John, consulting engineer, 21, Holt-hill, Higher Tranmere, Birkenhead.
Jones, John Alcock, boiler non-conducting composition maker, 37, Gracechurch-street, London, E.C.
Jones, J. W., engraver, 119, Newhall-street, Birmingham.
Jones, Mrs. C., rope and twine manufacturer, Eastgate-street, Chester.
Jones, M., electric bell fitter, 21, Broad-street, Worcester.
Jones, Thomas John, electric light engineer and electrician, 12, Princes-st., Hanover-sq., London, W.
Jones, William, optician, 172, Goswell-road, London, E.C.
Jones, William, optician, 60, St. John-street-road, London, E.C.
Jones, William, railway signal manufacturer, 11, Laurence Pountney-lane, London, E.C.
Jones, William, tool makers, 15½, Great Hampton-street, Birmingham.
Jordan, Thomas, copper smith, Commercial-street, Knot Mill, Manchester.
Joseph Bros., lamp and lustre manufacturers, 271, Liverpool-road, London, N.
Joseph, Henry, pulley and shafting maker, the Manor-road Foundry, Leeds.
Jowsey Bros. & Co., Tyne Steel and File Works, Washford-road, Attercliffe, Sheffield.
Joyce, W. H., wood engraver, 11, Bolt-court, Fleet-street, London, E.C.
Joyner, Charles & Co., electrolier lamp and lustre manufacturers, 84, Great Tower-street, London, E.C.
Joyner, Charles, & Co., manufacturers of electroliers, fittings, &c., Icknield-square, Birmingham.
Jukes, Coulson, Stokes & Co., telegraph iron buoy makers, 13, Clement's-lane, London, E.C.
Jutson, Henry, & Sons, manufacturing chemists, Liverpool-street, Birmingham.

K.

Kaestner & Toebelmann, electrolier lamp and lustre manufacturers, 14, South-st., Finsbury, London, E.C.
Kapunda Copper Company, Limited, 21, West Nile-street, Glasgow.
Kay & Fleming, turbine and waterwheel makers, Bank Iron Works, Middleton.
Kaye, Joseph, & Co., electrolier lamp and lustre, manufacturers, 248, High Holborn, London, W.C.
Kean, John L., manufacturing chemist, Port Dundas, Glasgow.
Keatley, James, brass caster, 400, New John-street West, Birmingham.
Keay, E. C. & J., steam engine boiler manufacturers, Victoria-buildings, Corporation-st., Birmingham.
Keeling, Mrs. Ann, electro gilder and plater, 6, Richard-street, Hockley, Birmingham.
Keen, William, mining engineer, Cradley Heath, Rowley Regis.
Keenan, Matt., felt maker, 139, 141, Tredgar-road, London, E.
Keene, Alfred, lead merchant, 111, St. John's-road, Hoxton, London, N.
Keller, Albert, felt maker, 7, Bell-yard, Doctors'-commons, London, E.C.
Kellet & Macfeggan, mechanical engineers, 63, Queen Victoria-street, London, E.C.
Kellogg, E. H. (of New York), oil boilers and refiners, only manufacturer of anti-corrosive cylinder oil (J. Newland Brown, sole agent), 8B, Romford-place, Liverpool.
Kelly, James & Andrew, opticians, 82, Argyle-street, Glasgow.
Kelly, Albert, electro gilder and plater, 87½, New John-street West, Birmingham.
Kelly, Alex., electrolier lamp and lustre manufacturer, 59, Mark-lane, London, E.C.
Kelso & Tod, mathematical instrument makers, 43, Union-street, Glasgow.
Kelvin Chemical Company, Craighall Works, Maryhill.
Kember, William, mechanical engineer, 54, Great Sutton-street, London, E.C.
Kemble, Richard, electric bell fitter, 10, Falcon-grove, Clapham-junction, London. S.W.
Kemp & Tabberner, oil merchants, 216, Ashted-row, Birmingham.
Kempton, Charles Henry, electrolier lamp and lustre manufacturer, 57, Vauxhall-walk, London, S.E.
Kempson, D. J., wire drawer, 313, Broad-street, Birmingham.
Kendall & Gent, machine tool makers, 11, Queen Victoria-street, London, E.C.
Kendrick, Arthur, fitters, 29, Hurst-street, Birmingham.
Kendrick, John, patent agent, 7, Broad-street (corner), Birmingham.

Digitized by Google

Kendrick, Thomas, patent agent, 41, Temple-street, Birmingham.
Kennedy, George, electric bell fitter, 44, Barrack-street, Glasgow.
Kenrick, Archibald, & Sons, ironfounders, West Bromwich, Birmingham.
Kenrick & Son, spelter manufacturers, the Spelter Works, Ruabon, North Wales.
Kent, J. & H., & Co., wire drawers, New Brampton, Chesterfield.
Kent, J., & Son, earthenware manufacturers, 11, Market-place, Longton, Stafford.
Kent & Parr, earthenware manufacturers, Wellington-street, Burslem, Stafford.
Kent, Alfred, draughtsman, 6, Catherine-street, Sheffield.
Kent, J., 9, teachers of telegraphy and electrical sciences, 9, Railway-approach, London-bridge, London, S.E.
Kent, P. J., drain pipe manufacturer, Endon Edge Works, Endon, Stoke-on-Trent.
Kenyon, A., & Co., gauge glasss manufacturers, gauge and all kinds of machinery glasses, &c., Market-place, Manchester.
Kenyon, W., & Sons, cotton driving band makers, 86, Queen-street, Cheapside, London, E.C. (Cotton driving rope).
Kenyon, W., rope and twine manufacturer, Chapel Field Ropery, Dukinfield.
Kerr Brothers, Nelson & Co., bolt and screw makers, 175, West George-street, Glasgow.
Kerr & Co., gas and water pipe manufacturers, Caledonia Foundry, Firhill-road, Glasgow.
Kerr, James, & Co., iron merchants, 154, West George-street, Glasgow.
Kershaw, J. & J., machine tool makers, 27, Leadenhall-street, London, E.C.
Kerwood, S., lead pipe manufacturer, 32, College-street, Portsea.
Ketley, J. H., ironfounder, Glenday & Co., Victoria-buildings, Corporation-street, Birmingham.
Keys, James, & Son, copper refiners, Lawley-street, Birmingham.
Keyte, William, mechanical engineer, Vernon Mews, 232, Portobello-road, London, W.
Keyzor, Ben., & Co., bronzists, 15, Charterhouse-buildings, London, E.C.
Kidd & Laing, electro plated ware manufacturers, Alfred-street, Warstone-lane, Birmingham.
Kidston, A. G., & Co., copper merchants, 81, Great Clyde-street, Glasgow.
Kidston, Filmer, air-tight glass case makers, Duke-street, Bishopsgate, London, E.
Kieser, Messrs. Elliott Brothers, electricians, 101, St. Martin's-lane, London, W.C.
Kiesow, August, & Co., electroliers lamp and lustre manufacturers, 18, Finsbury-circus, London, E.C.
Kiesow & Co., glass globe makers, 24 & 26, Basinghall-street, London, E.C. (Globes for electric lighting).
Kilby, W., electric bell fitter, 18, Wharf-street, Leicester.
Kilner, T., manufacturing chemist, Totley, Dore, Sheffield.
Kincaird and Co., oil merchants, 4, Mitre-street, Aldgate, London, E.
King & Browne, oil merchants, 93, Wigmore-street, London, W.
King, C., Wilden and Co., machine tool makers, 41 and 42, Parliament-street, London, S.W.
King, John, and Co., electro-plated ware manufacturers, 286, Icknield-street, Birmingham.
King, W., and Co., boiler makers, 27, South Kinning-place, Glasgow.
King, F., telegraph engineer, Lawrence-hill, Bristol.
King, J., railway signal manufacturer, Pinxton, Alfreton.
KING, J. W., electric depositor, 18, St. John's-square, London, E.C. Any work of art, medallions, &c., reproduced. Panels for cabinet makers' work.
Kingdom, A., and Co., electric apparatus manufacturers, 34, St. George's-rd., Southwark, London, S.E.
Kinghorn and Co., metallic valve manufacturers, 28, Brunswick-road, Liverpool.
Kingston, John, brass caster, 11, Woodcock-street, Birmingham.
Kingzett, Charles T., F.I.C., F.C.S., analytical chemist, 2, Letchford's-buildings, Three Colt-lane, London, E.
Kirk, W., manufacturing chemist, Killamarsh, Chesterfield.
Kirkaldy, D., testing machine (for wire, &c.) maker, 99, Southwark-street, London, S.E.
Kirkaldy, John, coppersmith and brazier, 40, West India Dock-road, London, E.
Kirkcaldy, R., telegraph engineer, 10, Charles-street, Monkwearmouth, Sunderland.
Kirkham, W., battery jar manufacturer, London-road, Stoke-on-Trent.
Kirkinstall Brothers, galvanizers, 15 and 16, Milk-street, Birmingham.
Kirkpatrick, A., & Co., galvanizers, 24, Buchanan-street, Glasgow.
Kirkstall Forge Company, shafting manufacturers, Leeds.
Kirton, Thomas J., & Co., grease manufacturers, 2 and 3, Bankside, Southwark, London, S.E.
Kitchen, Edgar, oil merchant, 13, Leonard-street, Finsbury, London, E.C.
Kitchen, J. G., lead pipe manufacturer, 22, Paisley-street, Liverpool.
Kitchin, R., mechanical engineer, 54, Pancras-road, London, N.W.
Kitchen, William, oil merchant, 35, Phœnix-street, Somers Town, London, N.W.
Kitching, Brothers & Co., machine tool makers, Atlas Works, Leeds.
Kloepffer & Co., mica merchants, 23, Charles-street, Hatton-garden, London, E.C.
Knight Brothers, electro plate manufacturers and dealers, 12, Baker's-hill, Sheffield.
Knight & Hawkes, electrotypers, 13, Clerkenwell-close, London, E.C.
Knight, Hill & Co., chemical merchants, 18, Billiter-street, London, E.C.

Digitized by Google

Knight, J., & Sons, tallow merchants, Silvertown, Victoria-docks, London, E.
Knight, T., & Co., railway signal manufacturers. Leopold-street, Birmingham.
Knight, J., earthenware manufacturer, Stafford-street, Longton, Staffordshire.
Knott, Joseph, steel manufacturer, Highfield Steel Works, 106, New Thomas-street, Sheffield.
Knott, Wm., glass blower, Rhodeswell-wharf, Carr-street, London, E.
Knowles, F. C., & Co., electro plate and nickel silver spoon and fork manufacturers, 149A, South-street, Moor, Sheffield.
Knowles, G. J., electro gilder and plater, 169, High-street, Winchester, Hants.
Knowles, J., & Co., St. Pancras Goods Station, London, N.W.
Knowles, John, & Co. (George Williams, agent), crucible clay merchants, 35, Green-lane, Sheffield; works, Wooden Box, near Burton-on-Trent.
Knowles, M., & Son, stoneware manufacturers, New Brampton, Chesterfield.
Knowles, J., electric bell fitter, Walsall-street-works, Wednesbury.
Knowles, Thomas, designer, 136, Crookes, Sheffield.
Knowles, Thomas Adolph, designers, 61, Orchard-street; corner of Fargate, Sheffield.
Koch & Bergfeld, electro-plate manufacturers and dealers, 18, Finsbuy-circus, London, E.C.
Koeppen & Wenke, electrolier lamp and lustre manufacturers, St. Mary's-chambers, St. Mary-axe, London, E.C.
KOERBER, J. A., electrical instrument maker and electrician, 44, Frith-street, Soho, London, W.
Kraul, Augustus F. G., oil refiner, London Oil Works, Hackney-wick, London, E.
Krinks, S., electro-plate manufacturer and dealer, 1, Alfred-street, Warstone-lane, Birmingham.
Kugel & Berg, telegraph wire manufacturers, Jeffery's-square, St. Mary-axe, London, E.C.
Kugler, Charles, draughtsman, 104, Woodhead-road, Sheffield.
Kuhn, Ernest, brass and copper wire manufacturer, 7, Savage-gardens, Tower-hill, London, E.C.
Kühne, Gebruder, electrolier lamp and lustre manufacturer, 47, Basinghall-street, London, E.C.
Kühne, Hermann, oil merchant, 34, Great St. Helen's, London, E.C.
Künster & Ricard, wire manufacturers, 11, Queen Victoria-street, and Ludgate-circus, London, E.C.
Kynoch & Co., rolling mills and rolled metal manufacturers, 65, Water-street, Birmingham.

L.

Ladd, John H., & Co., gas engine makers, 116, Queen Victoria-street, London, E.C.
La Force et La Lumière Company, electric light and power contractors, 446, Strand, London, W.C.
Laidlaw, R., & Son, electrolier lamp and lustre manufacturers, 6, Little Bush-lane, London, E.C.
Laidlaw, Sons & Caine, tube makers, Fordneuk-street, Glasgow.
Laing, Alexander, LL.D., teacher of mathematics, Anderston University, Glasgow.
Laing Electric Light and Power Company, Limited, electric engineers, 4 & 5, Three Crown-square, London, S.E.
Laing, White & Wharton, electroliers, &c., manufacturers, 8 & 9, Holborn-viaduct, London, E.C.
Laing, R. G., bolt and screw maker, 29, Waterloo-street, Glasgow.
Laingbury, A. G., telegraph instrument manufacturer, 65, East-road, City-road, London, N.
Lake Superior Native Copper Company, Limited, 1A, Abchurch-yard, London, E.C.
Lamb, G., electro plate manufacturer and dealer, 234, Icknield-street East, Birmingham.
Lambert Brothers, iron tube makers, Ablewell-street, Walsall, Birmingham.
Lambert, Chas., & Co., copper company and merchants, 1, Crosby-square, London, E.C.
Lambert, C., & Co., wire manufacturers, Port Tenant Copper Works, Swansea.
Lambert, C., & Co., copper merchants, 37, Brook-street, Liverpool.
Lambert, Chas., coppersmiths, 43, West Campbell-street, Glasgow.
Lambert, W. T., lead tube maker, 9, Tabernacle-row, City-road, London, E.C.
Lancashire and Cheshire Telephonic Exchange Company, Limited, 38, Faulkner-street, Manchester.
Lancashire Patent Belting and Hose Company, Wire Works Mills, Strangeways, Manchester.
Lancaster and Bawn, iron tank manufacturers, 49, West India Dock-road, London, E.
LANCASTER, EDWIN, charcoal manufacturer, coal dust and charcoal grinder, &c., 27, Rockingham-street, London, S.E.
Lancaster, Jas., & Son, opticians and electricians, 37, Colmore-row, Birmingham.
Lancaster, S., stoneware manufacturer, Whittington-moor, Newbold, Chesterfield.
Landell, W., mathematical instrument maker, 106, Trongate, Glasgow.
LANDER & LARSSON, manganese merchants, 164, Edmund-street, Birmingham.
Landore Copper Company, Landore, near Swansea.
Lane & Nesham, lead manufacturers, Old Shot Tower Works, Commercial-road, Lambeth, London, S.E.
Lane & Reynolds, mechanical engineers, Cranbrook-place, Old Ford-road, Bethnal-green, London, E.

Digitized by Google

LANE, HOWARD, mechanical engineer, 117, Palmerston-buildings, Old Broad-street, London, E.C. Agents for Root's steam boilers, wrought iron and steel tubes of all descriptions. All descriptions of steam, hydraulic and general machinery, constructive iron work, metals, &c., purchased on the most favourable terms. Preliminary suggestions, sketches or calculations gratis.

Lane, Josiah, flint and coloured glass manufacturers, 41 & 42, Hampton-street, Birmingham.

Lane, Samuel Francis, tool maker, 15, Warstone-park East, Birmingham.

Lane, William Moore, reflector manufacturer, 47, Long-acre, London, W.C.

Lang, George & Sons, coppersmiths and braziers, 46, Gerrard-street, Soho, London, W.

Lang, Jonas, & Jules, india-rubber manufacturers and dealers, 13, Charterhouse-buildings, Aldersgate-street, London, E.C.

Lang, Wm., Jun., & Co, sheet lead and lead pipe manufacturers, Clyde Lead Works, Cornwall-street, Paisley-road, Glasgow.

Lang, R. G., india-rubber merchant, 29, Waterloo-street, Glasgow.

Lange, Carl, mechanical engineer, 178 & 180, High Holborn, London, W.C.

Langton & Bicknells, oil merchants, 89, Newington-butts, London, S.E.

Langton, Fras., oil merchant, 143 to 145, Upper Whitecross-street, London, E.C.

Large, John, & Co., hinge makers, 23, St. Mary-axe, London, E.C.

Larmuth, T., & Co., turbine and water-wheel makers, Unwin-street, Cross-lane, Salford, Manchester.

Latham & Morton, electro-gilders and platers, 115 & 116, Vyse-street, Birmingham.

Latham, R., mining engineer, Tie-street, Bates-hill, Dudley.

Lavender, John, electrician, 11, Todd-street, Corporation-street, Manchester.

Law, James, & Co., iron founders, 39, Washford-road, Attercliffe, Sheffield.

Law, S., & Sons, wire drawers, Moorland Mill, Bradford-road, Cleckheaton, Yorkshire.

Lawford, O., wire drawer, Moorside, Cleckheaton, Yorkshire.

Lawley, James, manufacturing chemist, Regent-place, Birmingham.

Lawley, Walter, optician, 78, Farringdon-street, London, E.C.

Laurance, Henry, optician, 44, Hatton-garden, London, E.C.

Laurence, James, zinc manufacturer, 38, Montrose-street, Glasgow.

Lawrence & Co., crucible manufacturers, &c., Warren-street and Tinsley-road, Sheffield.

Lawrence, Nathan, optician, 4, Arundal-square, Barnsbury, London, N.

Lawrie, Alexander, & Co., wire workers and weavers, 44, Moor-street, Birmingham.

Lawrie, James & Co., gas pipe makers, 63, Old Broad-street, London, E.C.

Lawrie, A., wire worker and weaver, 12, Sussex-street, Nottingham.

LAURIE, MILTON, wood engraver, 97, Fleet-street, London, E.C.

Laws, William George, consulting engineer, Central-buildings, Grainger-street, Newcastle.

Lawson, Rankin & Co., opticians, 85, Buchanan-street, Glasgow.

Lawson, James, mathematical instrument maker, 70, Argyle-street, Glasgow.

Lawson, J. C., coperas manufacturer, South Hylton, Sunderland.

Lawson, James Coldwell, coperas manufacturer, 38, Quayside, Newcastle.

Lawson, Mrs. Bethia, brazier, 32, Division-street and 10 Court, Carver-street, Sheffield.

Lawson, Peter, bronzist, 5, Hatton-garden, London, E.C.

Lacock, Chas., optician, 245, Moorfields, Sheffield.

Lazarus, Montague, & Co., bronzists, 536, Oxford-street, London, W.

Lea, Samuel, mechanical engineer, 14, Waterloo-place, New Cross-road, London, S.E.

Lea, C. H., railway signal manufacturer, Stafford.

LEA, HENRY, consulting electrical engineer, 38, Bennett's Hill, Birmingham.

Lea, James, consulting engineer, Grosvenor-street, Liscard-park, Liscard, Birkenhead.

Lea, Richard & Son, electric bell fitters, 12, High-street, Runcorn.

Leabon & Corfe, composition makers for preventing incrustation in steam boilers, Bridge-street and Plough-lane, Homerton, London, E.

Lead Company, 9, Martin's-lane, London, E.C.

LEALE, ANDREAS FRANZ, sub-marine telegraph engineer, 19 and 21, Westminster Bridge-road, London, S.E.

Lean Louis, analytical chemist, 12, Burngreave-road, Sheffield.

Lear, S., earthenware manufacturer, High-street, Hanley, Stafford.

Le Bas, S., electro gilder and plater, 5, Fleet-street, Dublin.

Leber, John, mechanical engineer, 157, Goswell-road, London, E.C.

Leckie, Graham & Co., machinery belt makers, 116, 118, 120, Union-street, Glasgow.

Leclere, Henri, designer, 84, Norfolk-street, Sheffield.

Leddell, H., & Co., electro gilders and platers, 19 and 20, Cow-cross-street, London, E.C.

Lee Brothers, india-rubber manufacturers, 3, Westmoreland-buildings, Aldersgate, London, E.C.

Lee & Hunt, machine tool makers, Arkwright-works, Nottingham.

Lee & Wigfull, electro plate manufacturers and dealers, John-street Works, Highfield, Sheffield.

Lee, A. T., optician, 31 and 33, Gallowtree-gate, Leicester.

Lee, Charles, brazier, 18 and 19, Freeman-street, Moor-street, Birmingham.

Digitized by Google

Lee, John, optician, 115, New Meadow-street, Sheffield.
Lee, Robert A., mechanical engineer, Victoria-yard, Broadway, London, S.W.
Lee, William Henry, air-tight glass case maker, 25, Broadley-terrace, Blandford-square, London, N.W.
Leech Brothers & Hoyle, electrolier lamp, lustre, &c. manufacturers, 20, Old-millgate, Manchester.
Leefe, F. E., electro gilder and plater, 289, Goswell-road, London, E.C.
Lees, Anderson, & Co., boiler makers, 100, Clyde-street, Anderston, Glasgow.
Lees & Hill, iron founders, 78 and 79, New-canal-street, Birmingham.
Lees & Sanders, refiners, 5, Warstone-lane, Birmingham.
Lees, S., & Son, electro-plate manufacturers and dealers, 108, Barr-street, Birmingham.
Lees, D. W., mining engineer, 2, New-road, Willenhall.
Leete, Edwards, & Norman, mechanical engineers, 366 and 368, Euston-road, London, N.W.
Légé, Annibal, & Co., electric light apparatus, Turnmill-street, London, E.C.
Legg, J., electric bell manufacturer, 18, Nelson-street, Swansea.
Legg, R., mechanical engineer, 49, Eagle Wharf-road, New North-road, London, N.
Leggott, Henry, & Co., electric bell fitters, Market-street, Bradford.
Leigh & Sillavan, copper merchants, 64, Deansgate, Manchester.
Leinbain's, patent needle lubricator, 24, Mark-lane, London, E.C.
Leisham & Welsh, copper merchants, 4, Vulcan-street, Liverpool.
Leitch, Archd., wire worker & wire cloth manufacturer, 30, East Clyde-street, Glasgow.
Leitch, John, wheel cutter, 45, John-street, Glasgow.
Lejeune & Perken, electrical instrument makers, 101, Hatton-garden, London, E.C.
Lemoine, J., electro gilder and plater, 17, Great Sutton-street, London, E.C.
Lempriere, George Philip, electro gilder and plater, 77, Spencer-street, Birmingham.
Lennard, G. H., gutta percha depôts, 8 and 21, St John-street, Hull.
Lenton & Rusby, opticians, 8, Waingate, Sheffield.
Leonard & Ellis, oil refiners, 39a, King William-street, London, E.C.
Leoter, William, coppersmith, 58, Renfield-street, Glasgow.
Leroy, F. & Co., boiler non-conducting composition makers, 11, Gray-ttreet, Commercial-road-east, London, E.
Leslie & Hall, tube makers, 50, Cadogan-street, Glasgow.
Leslie, Alex. Duff, wood engraver, 295, Strand, London, W.C.
Leslie, S., electro gilders and platers, 61, Upper-street, Islington, London, N.
Lester, William, bolt and screw makers, 58, Benfield-street, Glasgow.
Le Sueur & Co., chemical merchants, 24, 25, 27, Rood-lane, London, E.C.
Leechfield, J., manufacturing chemist, 50, High-street, Longton, Stafford.
Lever, G., & Co., wire drawers, Union Mill, Mount-street, Halifax.
Lever, G. & W., parchment makers, Albany-row, London, S.E.
Lever, Charles, electric lamp manufacturer—arc, Bowdon, Cheshire.
Levermore, Brothers, chemical merchants, 13, Cullum-street, London, E.C.
Levey, C. L., electric lamp manufacturer—arc, 38, Woburn-place, London, W.C.
LEVI, J., & CO., electrical instrument makers, 40, Castle-street, and 2, Dyers'-buildings, Holborn, London, E.C.
Levy, Joseph Solomon, & Co., opticians, 56, Houndsditch, London, E.
Levy, Armand, manufacturer of electric light fittings, electric bells, ebonite, carbons, batteries, magnets, dynamo machines, telegraph wire and wire coverers, 252, Goswell-road, London, E.C. and 34, Rue d'Hauteville, Paris; and 42, Rue de Ruysbroeck, Brussels.
Lewis & Co., electric bell fitters, 47, High Cross-street, Leicester.
Lewis, A. D., & Co., mechanical engineers, 72, Mark-lane, London, E.C.
Lewis, E. & Sons, (W. Reid & Co., agents,) iron tube makers, 5, New London-street, Fenchurch-street, London, E.C.
Lewis, G. C., & Son, electric bell and insulated wire manufacturers, 1, Lowndes-terrace, Knightsbridge, London, S.W.
Lewis & Lewis, engineers, Cambridge Works, Cambridge Heath-road, London, E.
Lewis & Morgan, wire drawers, Wildon Iron Works, Govilon, Abergavenny, Monmouthshire.
Lewis, R. A., & Co., electro plate manufacturers and dealers, 10, Dyer's-buildings, Holborn, London, E.C.
Lewis, Samuel & Co., rivet makers, Withymoor, Dudley.
Lewis, Williams & Co., stoneware drain pipe manufacturers, 354, Upper-street, London, N.
Lewis, James, oil merchant, 277, High-street, West Bromwich, Birmingham.
Lewis, J. Slater, insulator manufacturer, 28, Hamilton-street, Birkenhead.
Lewis, William Thomas, optician, 132, Lorrimore-road, London, S.E.
Lichtwitz, Ludwig, zinc merchant, 1, Tavistock-crescent, Westbourne-park, London, W.
Liddall, George, wholesale and retail optician, 15, Division-street, Sheffield.
Liddell, John, sealing wax manufacturer, 145, Trongate, Glasgow.
Liddell, John, consulting engineer, 10, Claremont-place, Newcastle-on-Tyne,

Digitized by Google

Lieuw, A. H., & Co., boiler non-conducting composition makers, 374, Commercial-road-east, London, E.
Light, E., electro plate manufacturer and dealer, 15A, Lime-street, London, E.C.
Lilleshall Co., mechanical engineers, Mileage Station, Westbourne-park-road, London, W.
Lilly, William, screw stock and die tap maker, 122½, Gooch-street, Birmingham.
Lilmant & Co., glass shade makers and dealers, 93, Old-street, London, E.C.
Lilybank Boiler Works, boiler makers, Eglinton-street, Glasgow.
Limburger, Falbrik, steel manufacturor, 47, Basinghall-street, London, E.C.
Lincoln, W., & Co., lightning conductor manufacturers, 13, Dundas-street, Glasgow.
Lindop, A. H., mining engineer, Station-street, Bloxwich, Willenhall.
Lindop, J., mining engineer, Lime-tree-house, Bloxwich, Walsall.
Lindsay, J. B., & Co., manufacturing chemists, 30, George-square, Glasgow.
Lindsay, Thomas, steel manufacturer and merchant, 83, E. Clyde-street, Glasgow.
Lindsay, W. H., & Co.. mechanical engineers, 14, South-side, Paddington Basin, London, W.
Lindsay, Brothers. magnetic and electric appliance manufacturers, 55, Borough High-street, London, S.E.
Linegar, John, electro plated ware manufacturer, 63 and 64, Spencer-street, Birmingham.
Lingard & Baker, electro plate and nickel silver spoon and fork manufacturers, 52, Great Hampton-street, Birmingham.
Lingham Brothers, electric bell fitters, 1, Harford-street, Birmingham.
Linley, A., & Co., railway signal manufacturers, 132, Lionel-street, Birmingham.
Linley, Nicholas, file manufacturer, Woodseats, North Sheffield.
Lionel Street Co., hinge makers, 19, Gracechurch-street, London, E.C.
Lisner, Hooper, & Co., chemical merchants, 7, Mincing-lane, London, E.C.
Lister, J., wire drawer, Victoria Mills, Brighouse.
Lister, W., india-rubber manufacturer, Coal Exchange, 51, Renfield-street, Glasgow.
LITHOLINE CO., composition makers for preventing incrustation in steam boilers, 11, Queen-street, Oldham.
Little, Irving, & Co., oil merchants, 195 and 197, Cleveland-street, Birkenhead.
Little, James, gas engineer, 69, Clayton-street, Newcastle,
Littlewood, Thomas, chemical, mathematical, and philosophical instrument maker, 25, Howard-street, Glasgow.
Littlewood, Thomas, optician, 25, Howard-street, Glasgow.
Livermore, Isaac, india-rubber manufacturers, 3, College-hill, London, E.C,
Livett & Son, oil merchants, 22, Borough High-street. London, S.E,
LIVINGSTONE, JAMES, metal merchant, 34, Gracechurch-street, London, E.C.
Lizars, John, mathematical instrument maker, 16, Glassford-street, Glasgow.
Llewellins & James, steam engine indicator, vacuum and hydraulic gauge manufacturers, 28, Bath-street, Glasgow.
Lloyd Bros., braziers, Chapel Works, High-street, Harbron, Birmingham.
Lloyd Bros. & Co., wire manufacturers, 3, Queen-street-place, Cannon-street, London, E,C.
Lloyd Bros. & Co., bolt and nut manufacturers, 97, Cannon-street, London, E.C.
Lloyd Bros. & Co., screw manufacturers, 25, Floodgate-street and Gibb-street, Birmingham.
Lloyd, F., & Co., charcoal manufacturers and dealers, Russell-place, Bermondsey, London, S.E.
Lloyd, R., & Co., raw hide and other mill banding manufacturers, 135 and 136, Steelhouse-lane, Birmingham.
Lloyd, S., & Co., galvanizers and galvanised iron wire manufacturers, Drayton-st.-west, Wolverhampton.
Lloyd & Lloyd, engine and boiler fittings manufacturers, 90, Cannon-street, London, E.C.
Lloyd, William Henry, brazier, High-street, Harborne, Birmingham.
Loach & Clarke, brass founders, 20 to 23, Essington-street, Islington, Birmingham.
Lobb, H., surgeon-electrician, 66, Russell-square, London, W.C.
Locke, Blackett & Co., lead manufacturers, St. Anthony's, Newcastle-on-Tyne.
Locke, Lancaster & Co., lead merchants, St. Peter's-chambers, Cornhill, London, E.C.
Lockerbie & Wilkinson, iron-founders, Exeter-street, Holloway-head, Birmingham.
Lockett, J. & Co., earthenware manufacturers, King-street, Longton, Staffordshire.
Lockwood, Miss Maria, clock wheel maker, 13, Mydelton-street, London, E.C.
Lockyer, George, & Son, charcoal makers and dealers, 36, Mark-lane, London, E.C.
Logan, Edward, copper merchant, Birkenhead Dock Works, Beaufort-road, Birkenhead.
Lohmann, C., anti-friction metal merchant, 43, London-wall, London, E.C.
Lomas, Thomas Paul, metal merchant and dealer, 155, Moor-street, Birmingham.
London Bros., machine tool makers, 156, Upper Thames-street, London, E.C.
London Chemical Company, sulphuric acid manufacturers, Bow Bridge Wharf, London, E.
LONDON DRAWING OFFICE, draughtsmen, 98, London-wall, London, E.C.
LONDON (The) ELECTRIC WIRE COMPANY, telegraph wire coverers, Wenlock-buildings, Ironmonger-row, London, E.C. Manufacturers of covered wires of all descriptions for electrical instruments, dynamo machines, bell, house, telephone work, &c.; contractors to the principal Government departments and electric light and telephone companies.

Digitized by Google

London Electrical Company, electric engineers, 77, Turnmill-street, London, E.C.
London Galvanised Iron Company, iron tank manufacturers, 27, Wharf-road, City-road, London, N.
London Gas Engine Company, gas engine makers, Dalston Junction, London, N.E.
London and General Water Purifying Company, analytical chemists, 157, Strand, London, W.C.
London and Glasgow Engineering and Iron Ship Building Company, mechanical engineers, 34, Gracechurch-street, London, E.C.
London (The) and Globe Telephone and Maintenance Company, Limited, 31, Queen Victoria-street, London, E.C. ; H. H. Eldred, general manager.
London Patent Felt Company (The), felt makers, 4, Botolph-lane, London, E.C.
London Platino-Brazilian Telegraph Company, Limited, 66, Old Broad-street, London, E.C.
LONDON AND PROVINCIAL ELECTRIC LIGHTING AND PURIFYING GENERAL COMPANY, LIMITED, screw, terminal, and small detached accessories' manufacturers, 21, Great Winchester-street, Old Broad-street, London, E.C.
London Screw Company (Joseph Hawton, manager), screw manufacturers, Hawthorn-street, Oldbury-road, Smethwick, Birmingham.
London Stereoscopic and Photographic Company, opticians, 54, Cheapside, London, E.C.
London Sulphur Company, sulphur refiners, 4, Victoria-street, London, S.W.
London Zinc Mills, Limited, zinc merchants, Wenlock-road, London, N.
Lones, Vernon & Holdon, iron-founders, Sandwell Works, Smethwick, Birmingham.
Longden & Co., ironfounders, Phœnix Foundry, Furnace-hill, Sheffield.
LONGFORD WIRE, IRON, AND STEEL COMPANY, LIMITED, wire drawers, 68, Cornhill, London, E.C.
Lonsdale, M. & Co., wire workers and weavers, Cecil-street Works, Birmingham.
Lonsdale, Richard & Co., magnetic curative appliance manufacturers, 447, West Strand, London, W.C.
Loosley, Albert, parchment maker and dealer, 15, Boyson-road, Walworth, London, S.E.
Loosley, Thomas, parchment-maker, Marlborough-road, Old Kent-road, London, S.E.
LORRAIN, J. G., electrical consulting engineer, 2, Victoria-mansions, Westminster, London, S.W.
Lotz, Wm. Frederick, & Co., electrolier lamp, and lustre manufacturers, 20, Barbican, London, E.C.
Loudan, R., wood engraver, 37, Essex-street, Strand, London, W.C.
Loudon Bros., india rubber merchants, 111, Bothwell-street, Glasgow.
Love, Alfred, & Co., india rubber manufacturers, Old Shot Tower Wharf, Commercial-road, Lambeth, London, S.E.
Lovebond, Charles, & Co., india rubber manufacturers, 10, Cloak-lane, London, E.C.
Lovelock, J. F., mechanical engineer, Broadway Works, George-street, London-fields, Hackney, London, E.
Loveridge, George, optician, 113, Great Charles-street, Birmingham.
Low and Duff, coppersmiths and braziers, 15, Devonshire-street, London, E.
Low, James Barrie, M.A., teacher of mathematics, Kelvinside Academy, Glasgow.
Lowdon, George, electrician, Reform-street, Dundee.
Lowe, Charles and Co., coppersmiths, 158, Renfield-street, Glasgow.
Lowe & Gavagna, electrotypers, 62, Greengate, Salford, Manchester.
Lowe George, gilder, 61, Graham-street, Birmingham.
Lowe, J. E., mechanical engineer, 2, Laurence Pountney-hill, London, E.C.
Lowe, S., earthenware manufacturer, New Brampton, Chesterfield.
Lowe, W., earthenware manufacturer, High-street, Longton, Staffordshire.
Lowe, W. S., electric bell fitter, 42, Knightrider-street, London, E.C.
Lowe, William F., analytical chemist, Goss-street, Chester.
Lowenstark, M., electro gilder and plater, 32, Aldgate, London, E.
Lowford, O., wire drawer, High-town, Leversedge.
Lowwood Gunpowder Company, saltpetre merchants, Saltpetre Works, Acton-Bridge, Acton, Northwich.
Lubricative Packing Company, steam packing makers, 5, Hackney-road, London, E.
Lucas, A., wood engraver, 35, Great Charles-street, Birmingham.
Lucas, Joseph, optician, 59, King's-road, Chelsea, London, S.W.
Ludlow Brothers, galvanizers, 19, Gracechurch-street, London, E.C.
Lumsden, Byers & Co., copper merchants, 51, West Sunniside, Sunderland.
Lund and Blockley, electric clocks and synchronization, 42, Pall Mall, London, S.W.
LUNDS, J. A., electrician, 41, Cornhill, London, E.C.
Luther, W. H., galvanizer, 23, Great Clyde-street, Glasgow.
Luttage, W., tube manufacturer, Victoria Tube Works, Greatbridge, West Bromwich.
Lyde, William Henry, electro-plate ware manufacturer, 92, Newhall-street, Birmingham.
Lyle, James. optician, 132, South Portland-street, Glasgow.
Lynch & Co., indiarubber manufacturers, 192, Aldersgate-street, London, E.C.
Lyne and Son, cotton driving band makers, Simmondley, Glossop.
Lyon, William, electric bell fitter, 158, Buchanan-street, Glasgow.

Digitized by Google

Lysaght, John, wire netting manufacturer and galvanizer. Chief offices and works, St. Vincent's Galvanized Iron Works, Bristol; and Sheet Rolling Mills, Swan Garden Iron Works, Wolverhampton; London office, 28, Gracechurch-street, E.C.

Lysagt, J., galvanizer and galvanized iron wire manufacturer, St. Vincent Works, St. Philip's, Bristol.

M.

Mabbett, George, iron wire manufacturer, 19, Vaughton-street South, Birmingham.

McAdam Brothers & Co., turbine and water wheel makers, 28, Townsend-street, Belfast.

McAdam & Co., mechanical engineers, 21, New Bridge-street, London, E.C.

McAdam, John, pottery manufacturer, 45, Hyde Park-street, Glasgow.

McAllum, C. O. & Herbert, chemical merchants, 60, Gracechurch-street, London, E.C.

McArthur, William, Son & Co., metal merchants, 150, Leadenhall-street, London, E.C.

McBean, H., & Co., patent grease manufacturers, 50, Cook-street, Glasgow.

MacBean, Hugh & Co., grease manufacturers, 7, Mincing-lane, London, E.C.

MACBRAIN, WILLIAM, parallel wrought and cast vices, Sheaf Island Works, Sheffield.

Macbride & Co., coppersmiths, 56, Wellington-street, Glasgow.

McCall, Donald & Co., anti-friction metal makers, 8, Ashburnham-grove, Greenwich, London, S.E.

McCallum, William Cornelius, ironfounder, 231 & 232, Aston-road, Birmiugham.

Macclesfield and Cheshire Trade Protection Society, Roe-street, Macclesfield.

Macclesfield Patent Sulphate of Copper Co. (Samuel Orme, Manager), The Moss, Macclesfield.

Macintosh, Charl s, & Co., driving band manufacturers, Cambridge-street, Manchester.

Macintosh & Co., india rubber manufacturers, 1, Luke-street, Finsbury, London, E.C.

M'Conechy, R., & Co., manfacturing chemists, 64, St. Vincent-street, Glasgow.

McCorkindale & Sons, holdfasts for gas, iron and water pipes, 27, Douglas-street, Glasgow.

M'Grindell, Schaw & Co., copper manufacturers, 180, West George-street, Glasgow.

McCrossan, J., lamp post manufacturer, 3, Edgar-street, Scotland-road, Liverpool.

M'Crossan, Joseph, optician, 59 to 63, St. Enoch-street, Glasgow.

McCulloch, Thomas, & Sons, steam engine makers, Kilmarnock.

Macdona & Co., oil merchants, Stainsby-roan, Limehouse, London, E.

McDonald, Robert, wire workers and wire cloth manufacturers, 45, Union-street, Glasgow.

McDowall, Steven & Co., lamp post manufacturers, 142, North Woodside-road, Glasgow.

McDowell, R. W. H., steam packing manufacturers, 13, Bow-lane, London, E.C.

Mace & Haldane, chemical glass and apparatus manufacturers, 77 and 78, Milton-street, Cripplegate, London, E.C.

Mace, Edward, coppersmith, 1, Little Underbank, Stockport.

McEvan, W., copper merchant, 17, St. Vincent-lane, Glasgow.

McEVOY, CAPTAIN C. A., torpedo manufacturer, 18, Adam-street, Adelphi, London, W.C.

M'Farlane, Peter & Sons, electro platers, 10 & 11, Argyle-arcade, Glasgow.

Macfarlane, Strang & Co., gas pipe makers, 86, Cannon-street, London, E.C.

M'Farlane, George, 25, Wellington-street, Glasgow.

M'Geachy & M'Farlane, manufacturing chemists, 80 and 82, Port Dundas-road, Glasgow.

M'Geoch, William, & Co., steel manufacturers and merchants, 108, Argyle-street, Glasgow.

McGhie, T., mining engineer, Cannock, Staffordshire.

McGillivray & Scobbie, opticians, 204, George-street, Glasgow.

McGlashan, A., & Co., mechanical engineers, 10 and 11, Coal-yard, Drury-lane, London, W.C.

McGough, Lawrence, & Son, opticians, 41, Albion-street, Glasgow.

McGowan, J., mechanical engineer, 66 and 67, Wapping-wall, London, E.C.

McGregor & Co., mathematical instrument makers, 44 and 45, Clyde-place, Glasgow.

McGregor, Mrs. J., electro gilder and plater, 68, Hockley-hill, Birmingham.

McHaffie, James, & Co., coppersmiths, Calderwood-street, Parliamentary-road, Glasgow.

Machin, W., earthenware manufacturer, Percy-street Works, Hanley, Staffordshire.

McIllwraith, James, & Co., felt makers, 35, King William-street, London, E.C.

McIntosh & Co., manufacturing chemists, 48, Dundas-street, City Glasgow.

McIntosh, P., & Sons, leather driving band makers, 23, St. Mary-axe, London, E.C.

McIntosh, Peter, & Sons, machinery belt makers, 129, Stockwell-street, Glasgow.

McIntosh, J. A., chemical, mathematical, and philosophical instrument maker, 110, Ingram-street, Glasgow, and Newcastle-on-Tyne.

McIntyre & Lang, boiler makers, 89, Dumbart-road, Glasgow.

Macintyre, Robert, & Co., hinge makers, 4, Bury-street, London, E.C.

MacKean & Co., mechanical engineers, 10, Delahay-street, Westminster, London, S.W.

McKechnie, Wm., manufacturing chemist, 10½, North Albion-street, Glasgow.

McKendrick, Ball, and Co., mechanical engineers, 63, Queen Victoria-street, London, E.C.

Mackenzie Brothers, mechanical engineers, 82, Mark-lane, London, E.C.

Digitized by Google

McKenzie, Gilles, & Son, designers, 2, Cadman-lane, Sheffield.
Mackenzie, Henry, & Co., electro plated ware manufacturers, 263, Icknield-street, Birmingham.
McKenzie & Holland, railway signal manufacfurers, Vulcan Iron Works, Worcester.
Mackenzie, James, & Co., machine tool makers, 150, Leadenhall-street, London, E.C.
McKenzie & Smith, wire workers and weavers, 30, George's-street, Parade, Birmingham.
Mackenzie, T., & Sons, turbine and water wheel makers, 16, Holborn-viaduct, London, E.C.
Mackey, Mackey, & Co., analytical chemists, 1 and 2, Bouverie-street, London, E.C.
Mackintosh, C., & Co., india-rubber manufacturers and dealers, 19, St. Bride-street, London, E C.
Mackintosh & Co., india-rubber manufacturers, 106, Queen Victoria-street, London, E.C.
Macklow, Charles, optical glass maker, 150, Sherlock-street, Birmingham.
Mackness, George, mechanical engineer, 5, Harrington-street, London, N.W.
McLaren, Andrew, & Co., iron founders, 175, Upper Thames-street, London, E.C.
McLaren, R., & Co., tube makers, Canal-street, s.s., Glasgow.
M'Lay, Alex., & Co., gutta percha merchants, 83, Jamaica-street, Glasgow.
Maclea & March, machine tool makers, 19, Walbrook, London, E.C.
M'Lean, Andrew & Co., bolt and nut makers, 155, Canning-street, Glasgow.
McLean Brothers & Rigg, metal merchants, 118, Cannon-street, London, E.C.
McLean, H., copper merchant, 41, Oldhall-street, Liverpool.
McLean's Telegraph News Exchange, 34A, Throgmorton-street, London, E.C.
MacLellan, George, & Co., hinge makers, 126, Bishopsgate-street Within, London, E.C.
McLellan, George, & Co., gutta percha merchants, 55, Robertson-street, Glasgow.
MacLellan, P. and W., bolt and nut manufacturers, 209, Upper Thames-street, London, E.C.
M'Lellan, D. G., manufacturing chemist, Craig-street, East-end of Duke-street, Glasgow.
McLellan, John, tube makers, 77, Warroch-street, Glasgow.
McLeod, A. & M., opticians, 361, Argyle-street, Glasgow.
McLeod, Wm., & Co., tube makers, 30, St. Enoch-square, Glasgow.
M'Leod, F. H., manufacturing chemist, 6, Main-street, Anders, Glasgow.
Macnay & Co., T. W., india-rubber manufacturers, Stockton-street, Middlesborough.
McNaught, W., steam engine indicator, vacuum, and hydraulic gauge maker, 26, Robertson-street, Glasgow.
Macnee, D., engineer, 2, Westminster-chambers, London, S.W.
M'Neill, F., & Co., felt makers, 1, Lamb's-buildings, Bunhill-row, London, E.C.
M'Neil, J., & Co., felt manufacturers, 108, Argyle-street, Glasgow.
M'Neil, Charles, jun., bolt and screw maker, 270, West Scotland-street, Glasgow.
McNeil, Hector, oil merchants, 327, Lodge-road, Birmingham.
M'Nicoll & Smith, boiler makers, 6, Dixon Street, Glasgow.
Mackie, J. & J., & Co., pulley makers, 4, Brabant-court, Philpot-lane, London, E.C., and at Reading.
Mackinder, J. & Co., wire manufacturers, Carlisle-street-east, Sheffield.
Mackinney, Fredk. Wm., optician, 156, High-street, Notting-hill, London, W.
McKinnon & Tannahill, tube makers, Rochester-street, Glasgow.
Mackinnon, R. B., tube maker, 30, London-street, Glasgow.
Macqueen, J. & Son, manganese merchants, 11, Old Jewry-chambers, London, E.C.
Macrae, F., M.A., mathematical teacher, Glasgow Academy, Glasgow.
Macrae, Henry, optician, 29, Royal Exchange, London, E.C.
McSTOCKER, ROBERT, oil merchant, 239, Aston-road, Birmingham.
McSymon & Potter, coppersmiths, 26, Clyde-place, Glasgow.
McTaggart, P., wire worker and wire cloth manufacturer, 12, Anderson-st, Gallowgate, Glasgow.
McTear & Co., felt makers, 63, Bishopsgate-street within, London, E.C.
McVinnie, R, coppersmith, 69 and 71, McAlpine-street, Glasgow.
McWhannel, E. & Co., zinc manufacturers, 10, N. Albion-street, Glasgow.
MacWILLIAM, agent for C. T. Maling, and J. Pearson, 20, Bartlett's-buildings, London, E.C.
Maddever, Wm. C., bolt and nut manufacturer, 124 & 126, Commercial-street, London, E.
Maddock & Co., earthenware manufacturers, Dale Hall Pottery, Burslem, Stafford.
Maddock, J. and Sons, earthenware manufacturers, Newcastle-street, Burslem, Staffordshire.
Maddocks, Richard & Co. steam engine boiler makers, 5, Duke-street, Birkenhead.
Maginnis, J. P., mechanical engineer, 10, Victoria-chambers, London, S.W.
Mahbett, George, steel wire manufacturer, 19, Vaughton-street South, Birmingham.
Main, A. & J., & Co., wire netting manufacturers, 108, Queen Victoria-street, London, E.C.
Main, A. J., & Co., wire workers and wire cloth manufacturers, 25, Hope-street, Glasgow.
Mainwaring, E. T., metal merchant, Paddington-villa, Holyhead-road, Hudsworth.
Major, J. C., manufacturing chemist, Tronmore-green, Wolverhampton.
Makin, Thomas, & Son, steel manufacturers, 105, Edward-street, Sheffield.
Makin, James Henry, tool maker, Cupola, Sheffield.
Malan, Jean Antonio, designer, 33½, Graham-street, Birmingham.

Digitized by Google

Maling, C. T., manufacturer of telegraph instruments, insulators, battery jars, shackles, and chemical glass and apparatus, Ford Pottery, Newcastle-on-Tyne; Sample rooms: 20, Bartlett's-buildings, Holborn-circus, London, E.C.
Malins, Alfred & George, grease manufacturers, 52, White Post-lane, Hackney Wick, London, E.
Malkin, R., earthenware manufacturer, Fenton Culvert, Stoke-on-Trent.
Mallam Brothers, electric bell fitters, 8, Newport-street, Walsall.
Malleable Iron and Carbon Company, anti-friction metal merchants, Springfield-lane, Salford.
Mallender, G., electro plate manufacturer and dealer, 70, Bowden-street, Sheffield.
Mallett, C. S., steam engine maker, 120, Cannon-street, London, E.C.
Mallinder Brothers, ironfounders, Porter foundry, Sylvester gardens, Sheffield.
Malloch, McDougall, & Co., gutta percha merchants, 90, Queen-street, Glasgow.
Mallol, J., electro plate manufacturer and dealer, 176, Warstone-lane, Birmingham.
Mally & Sons, glass globe makers, 43, Parker-street, Little Queen-street, London, W.C.
Mammatt, William, electro plater, 121, Arundel-street, Sheffield.
Manganese Bronze & Brass Co., Lmtd., anti-friction metal makers, Lombard-st., Southwark, London, S.E.
Manager, Wm., & Co., electrolier lamp and lustre manufacturers, 126, Piccadilly, London, W.
Manlove, Alliott, Fryer & Co., steam engine boiler makers, 50, Queen Victoria-street, London, E.C.
Manning & Baynes, mechanical engineers, 101, Bishopsgate-street Within, London, E.C.
Manning & Son, electrotypers, 28, Old-street, Aldersgate, London, E.C.
Manning, Fredk. Alfred, analytical chemist, 18, Billiter-street, London, E.C.
Mantica, Anthony, wire worker and weaver, 30, Remington-street, City-road, London, N.
Manton, Henry J., electro-plated ware manufacturer, 108, 109 & 110, Great Charles-street, Birmingham.
Manfrng. Goldsmiths' & Silversmiths' Co., electro-plate manfs., & dealers, 112, Regent-st., London, W.
Maples, A. G., copper brazier, 15, Draper-street, London, S.E.
Mappin Brothers, electro-plate manufacturers and dealers, 67, King William-street, London, E.C.
Mappin & Webb, electro-plate manufacturers & dealers, 158, Oxford-street, London, W.
Mapplebeck (Howard), & Co., machine strap makers, 19, Gracechurch-street, London, E.C.
Marchand, Alfd., & Co., glass shade makers, 9, Kingsland-road, London, E.
Marchant, W., electro-gilder and plater, 3, St. James's-st., St. James's walk, Clerkenwell, London, E.C.
Mardara, & Co., wood engravers, 158, Strand, London, W.C.
Marillier, R. A., consulting engineer, Newland-park, Hull.
Marian, Edward, lead merchant, 38, Quayside, Newcastle.
Markham Brothers, lightning conductor manufacturers, Westgrove-street, Bradford.
MARKHAM, T. T., lightning conductor manufacturer & electric bell fitter, 102, Fetter-la., London, E.C.
Markland Electric Lighting, Power & Regulator Co., Limited, 8, Tokenhouse-yard, London, E.C.
Marlow, Edward, oil merchant, 256, New Town-row, Birmingham.
Marples, Wm., & Sons, machine tool makers, 14, Ivy-lane, London, E.C.
Marr, W., & Son, electro-gilders & platers, 28, Red Lion-street, Clerkenwell, London, E.C.
Marr, Jno. Jackson, electrician, 31, Moorfields, Liverpool.
Marratt & Ellis, opticians, 63, King William-street, London, E.C.
Marrian, Francis T., electro-plated ware manufacturer, 14, Cannon-street, Birmingham.
Marrian, James Pratt, brass founder, 4, 5 & 6, Slaney-street, Birmingham.
Marriott & Atkinson, file manufacturers, Fitzalan Works, Effingham-road, and Royds Rolling Mills, Royds Mill-street, Sheffield.
Marriott & Graham, boiler makers, Broomloan-road, Govan, Glasgow.
Marrison, Geo., mechanical engineer, 159, Alderminster-road, Bermondsey, London, S.E.
Marsden, G., & Son, brass founders, 53, Backfields, Sheffield.
Marsden, John, metal merchant, 28, Button-lane & Carver-street, Sheffield.
Marsden, R., wire drawer, Victoria Mills, Brighouse.
Marsh & Co., electro-gilders and platers, 30, Lower Sackville-street, Dublin.
Marsh, T., electro-gilder and plater, 131, Great Hampton-street, Birmingham.
Marshall & Co., mechanical engineers, 26, Budge-row, London, E.C.
Marshall, G. & Co., brass founders, 153, Bloomsbury-street, Birmingham.
Marshall, Hy. Thos., glass bender, 160, Newington-butts, London, S.E.
Marshall, Isaac & Sons, iron founders, 74, Bradford-street, Birmingham.
Marshall, John & Sons, iron tube makers, Glasgow Tube Works, Glasgow.
Marshall, Sons, & Co., Limited, steam engine makers, 3, King-street, Cheapside, London, E.C.
Marshall, T. J., & Co., mechanical engineers, Campbell Works, Gillet-street, Kingsland, London, N.
Marshall & Wylie, tube works, Glasgow Tube Works, Swanston-street, Glasgow.
Marshall, Wm., & Co., electrolier, lamp and lustre manufacturers, 4, Botolph-lane, London, E.C.
Marshall, J. E., general engraver, Court 14, Carver-street, Sheffield.
Marshfield Company, Limited, wire drawers, 79, Glover-street, Birmingham.
Martin & Co., refiners, 47, Princhett-street, Birmingham.
Martin & Co., electro-gilders & platers, 2, Court, Orchard-street, Sheffield.
MARTIN, HALL & CO., LIMITED, electro-gilders & platers, 27, Bouverie-st., Fleet-st., London, E.C.

Digitized by Google

Martin, S. jun., & Co., manganese merchants, Clarance Works, Burton-road, Sheffield.
Martin, A., spring maker, 54, Percival-street, Clerkenwell, London, E.C.
Martin, Robert, earthenware manufacturer, Ouseburn, Newcastle.
Martin's, magnetic curative appliance manufacturer, 272, Regent-street, London, W.
Martineau, F. E. & Co., hinge makers, 278, New Town-row, Birmingham.
Martineau & Smith, mechanical engineers, 85, Gracechurch-street, London, E.C.
Masefield, R. & Co., mechanical engineers, 93-97, Manor-street, Chelsea, London, S.W.
Masters, Tertius, wood engraver, 54, Paternoster-row, London, E.C.
Master & Titford, hinge makers, Luke-street, Finsbury, London, E.C.
Mason & Aldcock, earthenware manufacturers, Waterloo Pottery, Swadlincote, Burton-on-Trent.
Mason Bros., electric bell manufacturers, 29, St. Vincent-place, Glasgow.
Mason, Daniel & Sons, driving band manufacturers, 141 & 142, Bath-row, Holloway-head, Birmingham.
Mason & Elkington, copper merchants, Cwm Coppel and Pool Collieries, Bury Port.
Mason G. & Co., chemical, mathematical and philosophical instrument makers, 180 to 186, Sauchiehall-street, Glasgow.
Mason, W. M'G., & Co., india rubber manufacturers, 19, Waterloo-street, Glasgow.
Mason, Benj., rolling mills & rolled metal manufacturer, Wharf-street, Aston-manor, Birmingham.
Mason, Sir Josiah, refiners, Birches-green, Erdington, Birmingham.
Massey, John, electro-gilder and plater, 402, Monument-road, Birmingham.
Massey, J., electro-gilder and plater, 331, Icknield-street West, Birmingham.
Massey, T. P., wire worker and weaver, 7, Clumber-street, Nottingham.
Massey, Wm. H., electric light engineer, Twyford, Berks.
Massingham, T., lightning conductor manufacturer, 6, Bigg-market, Newcastle-on-Tyne.
Matchett, Frederick & Harry, iron founders, 21, George-street, Parade, Birmingham.
Mather & Armstrong, electric bell fitters, 24, Dean-street, Newcastle.
Matheson & Grant, mechanical engineers, 32, Walbrook, London, E.C.
Matthews, Chas., & Co., iron founders, Cleveland-road Wolverhampton.
Matthews, John & Co., grease manufacturers, 3, Market-buildings, Mincing-lane, London, E.C.
Matthews, Samuel & Son, hinge makers, 58, Charing-cross, London, S.W.
Matthews, Son & Co., manufacturing chemists, Eastgate, Great Driffield.
Matthews, R. A., machine tool makers, Nottingham.
Matthews, machine strap maker, 150, High-street, Camden-town, London, N.W.
Matthews, Thomas, mechanical engineer, Albion Works, Greenhill's-rents, Cow-cross-street, West Smithfield, London, E.C.
MATTHEWS, W. H., terminal screw maker, 22, Charterhouse-square, London, E.C.
Matthews, William Edwin, electric bell fitter, 69, Main-street, Sparkbrook, Birmingham.
Mathieson, J., electrician, 18, Adam-street, Adelphi, London, W.C.
Mathieson, J., electrician, India Rubber Company, Silvertown.
Maud & Turner, machine tool makers, Perseverance Works, Halifax.
Maudsley, Sons, & Field, steam engine makers, Westminster-bridge-road, London, S.E.
Maw, James, stoneware drain pipe manufacturer, Harrow-bag-wharf, High-st., Stratford, London, E.
Mawhood Brothers, file manufacturers, Palm Tree Works, Brightside-lane, Sheffield.
Mawson & Swan, electric bell manufacturers, 15, Mosley-street, Newcastle-on-Tyne.
Maxim Weston Electric Company, Limited, 47, Cannon-street, London, E.C.
MAX, SABEL, telegraph paper maker, 2, Coleman-street-buildings, London, E.C.
Maxwell, W. M., mechanical engineer, 52, Queen Victoria-street, London, E.C.
May, J. & F., mechanical engineers, 259, High Holborn, London, W.C.
May, Roberts, & Co., chemical glass and apparatus manufacturers, 9, Clerkenwell-road, London, E.C.
Mayer, T. & Co., bolt and nut manufacturers, 11, Hart-street, Mark-lane, London, E.C.
MAYFIELD, J. T., electrical instrument maker, 41, Queen Victoria-street, London, E.C.
Mead, Fredk. M., & Co., steam packing makers, 323D, Kennington-road, London, S.E.
MEADOW FOUNDRY CO., LIMITED (THE)—telegraph insulator manufacturers, Mansfield, Notts.
Meakin, J. & G., earthenware manufacturers, Eagle Pottery, Hanley, Staffordshire.
Meakin, A., earthenware manufacturer, Royal Albert Pottery, Parsonage-street, Tunstall, Staffordshire.
Meakin, Charles, earthenware manufacturer, Eastwood, Hanley, Stoke-on-Trent.
Measures Bros., & Co., mechanical engineers, 15, Southwark-street, London, S.E.
Mechan & Son, coppersmiths, 118, Cheapside-street, Glasgow.
Medhurst, T., mechanical engineer, 8, Little Denmark-street, London, W.C.
MEDICAL CONSTANT CURRENT ELECTRIC CO., LIMITED, 38, Lombard-st., London, E.C.
Mediterranean Extension Telegraph Company, Limited (E. Tombs, secretary), 158, Gresham-house, Old Broad-street, London, E.C.
Medland, J. B., electrician, Borough, London-bridge, London, S.E.
Medlicott, Alfred, oil merchant, 24, Bride-street, Liverpool-road, London, N.
Meek, James, & Co., electroliers and chandeliers, 13, Picardy-place, Edinburgh.
Meese, T., manganese merchant, Brettell-lane, Brierly-hill, Birmingham.

Digitized by Google

Meeson & Green, electro-plate manufacturers and dealers, Orchard-lane, Sheffield.
Meggitt, S., & Sons, manufacturing chemists, Sutton-in-Ashfield.
Meggson, T. A., railway switch and crossing manufacturer, Vulcan-street, Middlesborough.
Meir, J., & Son, earthenware manufacturers, Greengate Potteries, Tunstall, Stafford.
Meiter, C. W., & Co., gutta percha manufacturers and dealers, 86, Gracechurch-street, London, E.C.
Melhuish, R., & Sons, tool manufacturers, 85 and 87, Fetter-lane, London, E.C.
Mellor, Taylor & Co., earthenware manufacturers, Bournes-bank, Tunstall, Stafford.
Menage, G., electrolier lamp and lustre manufacturer, 21, Guildford-street East, London, W.C.
Mendey, Robert S., melter, 106, Fenchurch-street, London, E.C.
Menzies & Blagburn, copper merchants, Exchange-buildings, King-street, Newcastle-on-Tyne.
Menzies, Jas., & Co., tube makers, Dalmar-bridge, Glasgow.
Menzies, D. P., electrolier manufacturer, 22, Hope-street, Glasgow.
Menzies, D. P., coppersmith, 22, Hope-street, Glasgow.
Merrick, Wm. Higgins, oil merchant, Rolfe-street, Smethwick, Birmingham.
Merrikin, W. S., lead manufacturer, Trippett Works, 23, Trippett, Hull.
Merryweather & Sons, coppersmiths and braziers, Greenwich-road, London, S.E.
Merryweather & Sons, coppersmiths, 175, St. Vincent-street, Glasgow.
Messenger & Sons, chandelier makers, 19 and 20, Broad-street, Birmingham.
Messer, J. J., & Co., opticians, 78 and 80, Christian-street, Commercial-road, London, E.
Messer & Thorpe, draughtsmen, 8, Quality-court, Chancery-lane, London, W.C.
Messer & Thorpe, mechanical engineers, 54 to 58, Gedling-street, London, S.E.
Metcalf, T., pulley manufacturer, Vulcan-street, Caledonia-street, Bradford.
Meteorological Society (Learned and Scientific), 30, Great George-street, London, S.W.
Metham, H., mechanical engineer, 51, Church-street, Deptford, London, S.E.
METROPOLITAN (BRUSH) ELECTRIC LIGHT AND POWER CO., LIMITED, 110, Cannon-street, London, E.C.
Mettam & Winnett, glass shade makers and dealers, 71, Wardour-street, London, W.
Meyer, Henry Robert, permanent way for electric wires, B 12, Exchange-buildings, Liverpool. Meyer's patent permanent way for electric conductors or underground mains.
Meynell & Inman, electrolier lamp and lustre manufacturers, 132, Upper Thames-street, London, E.C.
Michel & Co., asbestos merchants, 51, New Oxford-street, London, W.C.
MICHELL, R. R., & CO., tin smelters, Gracechurch-street-buildings, London, E.C.
Michelmore & Reap, hinge makers, 36A, Borough-road, London, S.E.
Micklethwait, Wm. Henry, & Co., iron founders, Clough Works, Clough-road, Rotherham.
Middlehurst, P., telegraph wire manufacturer, Mill-lane, Crank, Rainford, St. Helen's.
Middleton Bros., oil merchants, 10 and 11, St. George-street, London, E.
Middleton, Kirkpatrick & Barr, chemical merchants, 4, Cullum-street, London, E.C.
Middleton, T., & Co., mechanical engineers, Loman-street, Gravel-lane, London, S.E.
Middleton, John, electro-plated ware manufacturer, 9, George-street Parade, Birmingham.
Midgley, D., steam engine maker, Viaduct Iron Works, Stanningley, near Leeds.
Midland Bolt & Nut Co., Star Works, Smethwick, near Birmingham.
Midland India Rubber Co., Ladywood Works, 89, 90, & 91, Ryland-street works, Birmingham.
Midland Wire Cordage Co. (Matthias Potter, proprietor), Orchard Works, Orchard-lane, Sheffield.
Milburn's Engineering Co., 39, Commercial-road East, London, E.
Miles, John, & Co., steam packing makers, Albert Works, Bolton, Lancashire.
Miles, H. J., steam engine boiler maker, Albert Iron Works, Bristol.
Miles, Wm. Chas., oil merchant, 21 to 24, Shoreditch High-street, London, E.
Mill Dam Mining Co., lead smelters, Great Hucklow, Eyam.
Millar, R., mechanical engineer, 44 and 46, Lancaster-street, Blackfriars-road, London, S.E.
Millard, Thos., & Son, opticians, 245, Oxford-street, London, W.
Millard, John, optician, 322, Upper-street, Islington, London, N.
Miller & Co., boiler makers, Vulcan Foundry, Coatbridge, Glasgow.
Miller, Alex., jun., & Co., lead manufacturers, 50, Kerr-street, Glasgow.
Miller, Edward, & Co., electroliers, 81, Queen Victoria-street, London, E.C.
Miller, G., & Co., manufacturing chemists, 4, West Nile-street, Glasgow.
Miller, J., & Co., bolt and nut makers, 204, Stobcross-street, Glasgow.
Miller, John, & Co., electro-plate manufacturers and dealers, 153, Greendyke-street, Glasgow.
Miller & Johnson, sulphuric acid manufacturers, 36, Mark-lane, London, E.C.
Miller & Sons, oil merchants, 178 and 179, Piccadilly, London, W.
Miller & Tupp, mechanical engineers, Creek Works, Middle-mall, Hammersmith, London, W
Miller, W., & Sons, screw makers, 63, Bishopsgate-street Within, London, E.C.
Miller, A., engraver, 119, Newhall-street, Birmingham.
Miller, Geo., screw maker, 204, Stobcross-street, Glasgow.
Miller, Ira, machine tool maker, 31, Spital-square, Bishopsgate, London, E.C.
Miller, John Fenwick, wood engraver, 64, Fleet-street, London, E.C.

Digitized by Google

Miller, Richard, telegraph instrument maker, 54, St. Enoch-square, Glasgow.
Miller, T. J., electric bell fitter, 8 and 14, Sauchiehall-street, Glasgow.
Milliechamp, Henry, & Co., drain-pipe (stoneware) manufacturers, 98, Bermondsey Wall, London, S.E.
Milligan, Thos., electrical engineer, 336, Old Kent-road, London, S.E.
Millington, T., & Co., lead merchants, 43, Commercial-street, London, E.
Mills, S., & Co., electric gilders and platers, 42, Ryland-street, Broad-street, Birmingham.
Mills, Thos., & Walter, electro-plated ware manufacturers, 244, Icknield-street, and 9 and 11, Park-road, Hockley, Birmingham.
Mills, John, optician, 88, Brearley-street, Birmingham.
Millward, W., electro-gilder and plater, 36, St. Paul's-square, Birmingham.
Milton Chemical Co., patent grease manufacturers, 22, Dundas-street, Glasgow.
Miroy, Ernest, electrolier, 71, Queen Victoria-street, London, E.C.
Mirrlees, Tait & Watson, boiler makers, 45, Scotland-street, Glasgow.
Mitchell, Alex., & Co., melters, 393, New North-road, London, N.
Mitchell & Carlaw, lamp post manufacturers, 258, Castle-street, Glasgow.
Mitchell & Fry, steam engine boiler makers, Emmett-street, Poplar, London, E.
Mitchell, J., & W., chronometer makers, 119, Buchanan-street, Glasgow.
Mitchell, Jas., & Wm., tinfoil manufacturers, 6, Bride-court, New Bridge-street, London, E.C.
Mitchell, J., & Co., Limited, steel manufacturers, Napier Works, Napier-street, Sheffield.
Mitchell, Thos., & Son, electric bell fitters, 24, Hurst-street, Birmingham.
Mitchell, Albert Henry, electro-gilder and plater, 26, Warstone-lane, Birmingham.
Mitchell, Fredk. Wm., wood engraver, 6, Wine-office-court, London, E.C.
Mitchell, G., wire worker and weaver, Linby, Nottingham.
Mitchell, J. W., tool maker, 94, Newington-causeway, London, S.E.
Mitchell, Robert, mechanical engineer, 35, Great Windmill-street, London, W.
Mitchell, W., telegraph engineer, 4, Guthlaeton-street, Leicester.
Mitchell's Emery Wheel Co., Limited, 20, David-street, Manchester.
Mitten, E., mechanical engineer, 70, Clerkenwell-road, London, E.C.
Mobey, James, oil merchant, 57, Brook-street, Macclesfield.
Moenich, Oscar, & Co., electrolier lamp and lustre manufacturers, 8, Coleman-street, London, E.C.
Moffatt, Alex., mechanical engineer, 26, College-street, Dowgate-hill, London, E.C.
Moffitt, J., railway switch and crossing manufacturer, Mandale-road, South Stockton, Stockton-on-Tees.
MOLE, M., & SON, bell push spring manufacturers, 51 to 54, Charlotte-street, Birmingham.
Molyneux, John, electric bell fitter, Castle-street, Northwich.
Mona Mine Company (copper), Mona Mine, Almwch, Anglesey, North Wales.
Monk, Charles, charcoal maker and dealer, Marlborough-street, Chelsea, London, S.W.
Monk, George, electric bell fitter, 19, Berkeley-street, St. John's-lane, Clerkenwell, London, E.C.
Monks, James, rope and twine manufacturer, 3, St. James's-street, Latchford, Warrington.
Monkton Manure Co., chemical manufacturers, 4, Queen-street, Newcastle.
Monniger, C. D., emery wheel and machinery maker, Farringdon-road, London, E.C.
Monro, P., & Co., galvanizers, 180, W. Regent-street, Glasgow.
Montevidean and Brazilian Telegraph Company, Limited, J. Fraser, secretary, 9, King's Arms-yard, Coleman-street, London, E.C.
Montgomery, J., & Co., manufacturing chemists, 18, Bishop-street, Port Dundas.
MOON, HENRY, mechanical engineer, 103, Suffolk-street, Birmingham. Toothed wheel manufacturer from ¼ to 30 inches diameter.
Moon, Thomas, bolt and nut manufacturer, 9, Court, 39, High-street, Deritend, Birmingham.
Moore & Co., earthenware manufacturers, Old Foley Pottery, Longton, Staffordshire.
Moore & Co., electrolier lamp and lustre manufacturers, 2, Judd-street, London, W.C.
Moore & Carling, steam engine boiler makers, Elkington, Chesterfield.
Moore, Alfred, reflector manufacturer, St. James's-walk, Clerkenwell, London, E.C.
Moore, R., electrolier lamp, lustre, &c., dealer, 60, Broomsgrove-street, Birmingham.
Moore, A. W. M., mechanical engineer, 132, Upper Thames-street, London, E.C.
Moore, William, file manufacturer, South Yorkshire Steel Works, Leveson-street, Attercliffe-road, Sheffield.
Moores, William, parchment maker and dealer, 271, Rotherhithe New-road, London, S.E.
Moorhouse, Sidney, steam engine and boiler fitting manufacturer, Victoria Brass and Iron Works, Stalybridge.
Moran, Bernard, metal merchant, 18, Peacroft, Sheffield.
Moreland, Richard, & Son, engineers, 3, Old-street, London, E.C.
Morewood & Co., iron tank manufacturers, 158, Leadenhall-street, London, E.C.
Morfa du Mining Company, Almwich, Anglesey, North Wales.
Morgan Crucible Company, (the Patent Plumbago Crucible Company), Battersea Works, Church-road, Battersea, London, S.W.
MORGAN & SON, tallow merchants and steam packing manufacturers, 217, Blackfriars-road, S.E.

Digitized by Google

Morgan, Brown, W., patent and design registration agent, 38, Southampton-buidings, London, W.C.
Morgan, C., mining engineer, Warwick-road, Spark-hill, Yardley, Birmingham.
Morgan, J. H., mechanical engineer, 110, Railway Arches, Deptford High-street, London, S.E.
Morgan, Mrs. Emily, glass blower, 19, Sekforde-street, Clerkenwell, London, E.C.
Morgan, Robert, & Son, leather driving band makers, 213 and 217, Blackfriars-road, London, S.E.
Moriarty & Co., tube brush manufacturers, 70, London-street, Greenwich, London, S.E.
Morley, W., earthenware manufacturer, Albion-street, Longton, Staffordshire.
Morris Brothers, manufacturing chemists, Misterton, Gainsborough.
Morris & Griffin, charcoal makers and dealers, Wolverhampton.
Morris, Pryce, & Co., oil merchants, 119, Foregate-street, Chester.
Morris Brothers, electric bell manufacturers, Hartington-buildings, Branston-street, Birmingham.
Morris, Frederick, oil merchant, Plough-bridge, Rotherhithe, London, S.E.
Morris, Henry, galvanizer, 38, Longmore-street, Birmingham.
Morris, John, ironfounder, Dadywood Iron Foundry, Great Tindal-street, Birmingham.
Morris, Richard, electric bell fitter, 3, Black Raven Alley, Upper Thames-street, London, E.C.
MORRIS, TIMOTHY, magnetic machine manufacturer, 3 and 4, Market-street, Birmingham.
Morris, W., galvanizer and galvanized iron wire manufacturer, 41, Cox-street west, Birmingham.
Morris, William, rolling mill and rolled metal manufacturer, Freeth-street, Birmingham.
Morrison, D. P,, consulting engineer, 21, Collingwood-street, Newcastle.
Morrison, F., steam engine indicator, vacuum and hydraulic gauge maker, 67, Oswald-street, Glasgow.
Morrison, J. D., magnetic curative appliance manufacturer, Villavito, 27, Grange-road, Edinburgh.
Morten, Adam, barytes manufacturer, Yeardsley-cum-Whaley, Stockport.
Mortlock, J., & Co., electrolier lamp lustre, &c. manufacturers, 466, Oxford-street, London, W.
Mortlock, William & Frederick, electrolier lamp and lustre manufacturers, 19, St. James-street, London, S.W.
Morton, Francis & Co., Limited, lightning conductor manufacturers, 1, Delahay-street, London, S.W.
Morton, F., & Co., Limited, wire drawers, 18, George-square, Glasgow.
Morton, H., & Co., electro plate manufacturers and dealers, 86, Bridge-street, Sheffield.
Morton, J., & Co., electro plate manufacturers and dealers, 78, Spencer-street, Birmingham.
Morton, J., & Sons, machinery belt makers, 48, London-street, Glasgow.
Morton, A. Sidney, stoneware drain pipe manufacturer, 101, Leadenhall-street, London, E.C.
Morton, George, electro plated ware manufacturer, 47, St. Paul's-square, Birmingham.
Morton, H., electro plate manufacturer and dealer, 8, Court, Kenion-street, Birmingham.
Morton, J., electro gilder and plater, 31, Nassau-street, Dublin.
Morton, John Thomas, oil merchant, 107 and 109, Leadenhall-street, London, E.C.
Moseley, David & Sons, hinge makers, 1, Milk-street, London, E.C.
Moss, Joshua & Gamble Bros., file manufacturers, Wadsley Bridge Steel Works, Wadsley, Sheffield; and at Franklin Works, 1, Russell-street, Sheffield.
Moss Rake, Mining & Lead Ore Smelting Company, Limited, lead smelters, Bradwell, Derbyshire
Moss, W., brass finisher, 7, Warsergate, Northumberland-street, Nottingham.
Moss, John, rope & twine manufacturers, Winsford, R.S.O.
MOSSES & MITCHELL, gelatinized fibre manufacturers, 62, Queen Victoria-street, London, E.C.
Mossley, D., & Sons, gutta percha merchants, 57, Miller-street, Glasgow.
Motherwell, John, chemical, mathematical, and philosophical instrument maker, 275, Argyle-street, Glasgow.
Motherwell, Wm., bolt and nut maker, 49, Bath-street, Glasgow.
Motlow, J., galvanizers and galvanized iron wire manufacturer, Dudley-street, Bilston.
Mould, J., & Son, galvanizers, Byron Works, Cox-street West, Balsall Heath, Birmingham.
Moulton, S., & Co., india rubber manufacturers, Bradford-on-Avon, Wilts.
Moulder, James R., optician, 44, Wimbourne-street, New North-road, London, N.
Mountain, Wm., & Sons, wire manufacturers, Trafalgar Works, Vincent-street, Newcastle.
Mountford, James Seba, & Co., electrolier lamp & lustre manufacturers, 11, Silk-street, Cripplegate, London, E.C.
Mowbray, Wm., mechanical engineer, Victoria-road, Deptford, London, S.E.
Muggeridge, J., electro gilder and plater, 15, Tower-street, Birmingham.
Muir & Caldwell, boiler makers, 130, Elliot-street, Glasgow.
Muir & Houston, boiler makers, Portman-street, Glasgow.
Muir, William, & Co., machine tool makers, 2, Walbrook, London, E.C.
Muir, A., teacher of mathematics, Glasgow Academy, Glasgow.
Muir, Robert, boiler maker, Henrietta-street, Glasgow.
Muir, T., teacher of mathematics, High School, Glasgow.
Muirhead, Andrew, & Co., machine belt makers, 14, Brunswick-lane, Glasgow.
Muirhead, James, & Son, chronometer makers, 90, Buchanan-street, Glasgow.
Muirhead, A. E., steel manufacturer and merchant, Crossmyloof, Glasgow.
Muirhead, Dr. A., electrician, Oakwood, 12, Farquhar-road, Upper Norwood, London, S.E.

Digitized by Google

Muirhead, James, iron founder, Cart Forge, Glasgow. Iron and steel forgings.
Müller, Emilias, glass blower, 79, Leadenhall-street, London, E.C.
Muller, Uhlich & Co., agents for Witte & Kamper, wire manufacturers, 37, King William-street, London, E.C.
Mummenhoff, Louis, spelter manufacturer, 79, Mark-lane, London, E.C.
Munro, P., & Co., wire-workers and wire cloth manufacturers, 180w, Regent-street, Glasgow.
Munro, William Robert, screw maker, Granville-place, King's-cross-road, London, W.C.
Muntz's Metal Company, metal merchants, 9, Fenchurch-street, London, E.C.
Murdoch, R., & Co., steel manufacturers and merchants, 20, Robertson-street, Glasgow.
Murdy, George, brass finisher, 55, Church Gate, Leicester.
Murdy, T., modeller, 3, Hutchinson-street, Nottingham.
Murphy, William, metal merchant and dealer, 25, New John-street, Birmingham.
Murray & Adam, manufacturing chemists, 279 and 281, North Woodside-road, Glasgow.
Murray & Co., pottery manufacturers, Caledon Pottery, Rutherglen, Glasgow.
Murray & Co., mathematical instrument makers, 22, St. John's-square, London, E.C.
Murray & Heath, opticians, 69, Jermyn-street, London, S.W.
Murray, Charles, wood engraver, 6, Wine Office-court, London, E.C.
Murray, R. C., zinc manufacturers, 3 to 19, Carlton-street, Glasgow.
Musgrave, J., & Sons, lamp post manufacturers, Globe Iron Works, Bolton.
Musgrave, Henry, screw maker, 33, City Garden-row, City-road, London, N.
Musto, J. J., & Co., mechanical engineers, 21 & 23, Clinton-road, Mile End-road, London, E.
Musto, T. E. & J. W., mechanical engineers, 121, Bankcroft-road, Mile End-road, London, E.
Musto, William, & Co., mechanical engineers, 47 & 51, Bakers'-row, Whitechapel, London, E.
Muter, Dr. John, F.C.S., analytical chemist, 325, Kennington-road, London, S.E.
Muxlow & Knott, file manufacturers, Pothouse-road, Attercliffe-common, Sheffield.
Mycock, John Henry, sulphuric acid manufacturer, 53, College-road, Masbro', Rotherham.
Myers, Alfred James, wire worker & weaver, 19, Walpole-street, New Cross-road, London, S.E.
Myers, J., optician, Dilk's-yard, Long-row West, Nottingham.

N.

Nadin, T., earthenware manufacturer, Woodville, Burton-on-Trent.
Naish, Arthur John, & Sons, mechanical engineers, 21, 22 and 23, Coleshill-street, Birmingham.
Napier, D., & Son, compass balance makers, Vine-street, York-road, Lambeth, London, S.E.
Napier, James, & Co., manufacturing chemists, Vinegar-hill, Camlachie, Glasgow.
Napper, Sidney, electric bell manufacturer and electro gilder and plater, 9, Fenchurch-st., London, E.C.
Nash, T., & Sons, tool manufacturers, Oldbury Works, Oldbury.
Nasmyth, Wilson & Co., mechanical engineers, 64, Cannon-street, London, E.C.
NATALI, ELKANAH, airtight glass case maker, 207, Old-street, London, E.C.
National Electric Company, Limited, 6, South Hanover-street, Glasgow.
National Telephone Company, Limited, Wellington-chambers, 40, Bennett's-hill, Birmingham.
National Telephone Company, Limited, 11, Queen Victoria-street, London, E.C.
Naylor & Bell, consulting engineers, 30, Clayton-street, Newcastle.
Naylor, J., & Co., wire drawers, Borough Wire Works, Scotland-road, Warrington.
Naylor, J. T., consulting engineer, 10, Clayton-street, Newcastle.
Naylor, William, and Company, electro-plated ware manufacturers, Caledonian Works, 14, Vittoria-street, Birmingham.
Neal, J., electro plate manufacturer and dealer, 44, Edgware-road, Marylebone, London, W.
Neal, Thomas, mechanical engineer, 32, Eagle Wharf-road, New North-road, London, N.
Neale, George William, tin merchant, 21 and 22, Bush-lane, London, E.C.
Neale, George William, lead and tin merchant, 150, Leadenhall-street, London, E.C.
Needham & Kite, mechanical engineers, 220, Upper Kennington-lane, London, S.E.
Needham, James, oil manufacturer, 25, Little Pond-street, Sheffield.
Negretti & Zambra, electrical instrument makers, Holborn-viaduct, London, E.C.
Nehan, C., & Son, mechanical engineers, Medway-buildings, Medway-road, Roman-road, London, E.
Neighbour, George, & Sons, oil merchants and refiners, 127, High Holborn, London, W.C.
Neill, W., & Son, steam engine makers, St. Helen's Junction, Lancashire.
Neilson, Walter, & Co., enamellers of glass or iron, 182, Upper Thames-street, London, E.C.
Neison & Bayne, analytical chemists, 173, Fenchurch-street, London, E.C.
Neil, Charles, engineers' tool maker, 72, Bridge-street, Sheffield.
Nell, Fred, turbine and water wheel manufacturers, 26, Mark-lane, London, E.C.
Nelson, J. & S., lamp post manufacturers, 47, Briggate, Leeds.
Nelson, James, & Sons, telephone apparatus makers and electricians, Leeds.

Digitized by Google

Nelson, James, & Son, boiler makers, 824, Gallowgate, Glasgow.
Nelson, J., & Sons, lightning conductor manufacturers, Doncaster-road, Wakefield.
Nelson, Wm., jun., electrolier lamp and lustre manufacturer, 38, Kennington-road, London, S.E.
Nesbitt, J. C., & Son, analytical chemists, 38, Gracechurch-street, Fondon, E.C.
Ness, W., mathematical teacher, 325, Dumbarton-road, Glasgow.
Nestle & Huntsman, glass shade makers, 157, Commercial-road, London, E.
Nettlefield & Co., melters, Bow Common, London, E.
Nettlefolds, Limited, wire and screw manufacturers, 16, Broad-street, Birmingham, and 9, Fenchurch-avenue, London, E.C.
Nettlefold & Sons, screw makers, 54, High Holborn, London, W.C.
Nettleship, Mrs. Anne, grease manufacturer, Vicar-lane and Tudor-street, Sheffield.
Neufville, William de, lead merchants, 4, Cullum-street, London, E.C.
Neeves, R. W., electrical instrument maker, 55, Sidmouth-street, Gray's-inn-road, London, W.C.
Neville, Druce, & Co., lead and copper merchants and smelters, 24, Exchange-alley, Liverpool, and King William-street, London, E.C.
New, Custance, mathematical instrument maker, 29, King-street, Goswell-road, London, E.C.
New, John Wm., electrician, 44, Dean-street, Soho, London, W.
Newall, R. S., & Co., telegraph contractors, engineers, and wire manufacturers, 68, Anderston-quay, Glasgow, and 130, Strand, London, W.C.
Newbold, Alfred Edwin, optician, 149, Goswell-road, London, E.C.
Newbould, Samuel, & Co., Limited, steel manufacturers, Bridge Field Works, 70, Newhall-road, Brightside-lane, Sheffield.
Newcastle Chemical Works, Limited, chemical manufacturers, 4, Quayside, Newcastle.
New & Co., machine tool makers, 15, Devonshire-chambers, Bishopsgate-street Without, E.C.
Newham, Benjamin, & Co., manufacturing chemists, Castle-hill, Sheffield.
Newlands, John, analytical chemist, 9, Mincing-lane, London, E.C.
Newman & Co., electro gilders and platers, 40, St. Paul's-square, Birmingham.
Newton, Chambers, & Co., gas and water pipe manufacturers, 47, South-street, Moor, Sheffield.
Newton, Frederic, & Co., glass globe makers, 3, Fleet-street, London, E.C.
Newton, John, & Co., felt makers, Manor Works, Rotherhithe-new-road, London, S.E.
Newton, J. W., & Co., oil merchants, 72, Mark-lane, London, E.C.
Newton, Keates, & Co., copper merchants, Broad-street, Birmingham, and at Glasgow.
Newton & Son, registration agents, 66, Chancery-lane, London, W.C.
Newton, Edward Price, designer, 21, Caroline-street, Birmingham.
Newton, James, electric bell fitter, 138, St. John-street-road, London, E.C.
Newton, Oliver, glass manufacturer, 44, Cambridge-street, Birmingham.
Newton, Rupert E., electro plated ware manufacturer, 45, Northampton-street, Birmingham.
New York Hamburg India Rubber Company (John Sangster), ebonite, vulcanite, and india rubber manufacturers, 8, Coleman-street, London, E.C.
Nibb, C., steel manufacturer, 33, Glover-street, Birmingham.
Niblett, Geo. D., lead merchant, 16, Wharf, Hertford-road, Kingsland, London, N.
Nicholl, Robert, mathematical instrument maker, 153, High Holborn, London, W.C.
Nicholls & Clarke, lead merchants, 6, High-street, Shoreditch, London, E.C.
NICHOLLS, J., & G. P., wood engravers, 17, Holborn-viaduct, London, E.C.
Nicholls, Chas. T., lead merchant, 37, Kentish Town-road, London, N.W.
Nicholls, J., steel file manufacturer, 28A, Newton-street, Birmingham.
Nichols, Joseph, & Son, wire workers and weavers, 162 to 165, Cheapside, Birmingham.
Nicholson, Alex. & Co., boiler makers, St. Marnock-street, Glasgow.
Nicholson, Jas., & Co., lead merchants, 214, Upper Thames-street, London, E.C.
Nicholson, Benjamin, steel manufacturer, Shoreham Steel Works, Bramall-lane, Sheffield.
Nicholson, D., wire worker and wire cloth manufacturer, 132, Kennedy-street, Glasgow.
Nicholson, J., oil merchants, 449 to 455, London-road, Sheffield.
Nickel Co. 4, Great Charles-street, Birmingham.
Nickel Plating Co., 13, Greek-street, Soho, London, W.
Nickels, Benjamin, F.C.S., F.I.C., analytical chemist, 104, Leadenhall-street, London, E.C.
NICKHOLS, JOHN, mechanical engineer, 103, New North-road, London, N.
Nicol, Robert, parchment maker, 2, Bell's-buildings, Salisbury-square, London, E.C.
Nicholl, David F., manufacturing chemist, 139, Bothwell-street, Glasgow.
Niesigh & Soule, oil refiners, Victoria Oil Mills, Rotherhithe-street, London, S.E.
Nightingale, John, rope and twine manufacturer, Middlewick.
NIGHTINGALE, G. P., manganese merchant and agent, 83, Upper Thames-street, London, E.C.
Nimms, W., wire rope manufacturer, 2, Oswald-street, Glasgow.
Nisbett, Wm., india rubber manufacturer, 128A, Queen Victoria-street, London, E.C.
Noakes, Thomas, & Son, steam engine makers, 195 & 196, Brick-lane, London, E.
Noble, Henry, composition maker, etc.,883, Old Kent-road, London, S.E.

Digitized by Google

Noble, James, mechanical engineer, 39, Church-street, Bethnal-green, London, E.
Nobel's Explosive Co., manufacturing chemists, 149, West George-street, Glasgow.
NOBES, HOMAN & HUNT, leather driving band makers, etc., 75, Rockingham-street, Newington-causeway, London, S.E.
Nokes, William, rolling mills and rolled metal manufacturer, Speedwell Mills, Chester-street, Dartmouth-street, Birmingham.
Noone, A., electro-gilder and plater, 55, St. John-street-road, London, E.C.
Noman, John, & Co., boiler makers, 16 to 22, Pulteney-street, Glasgow.
Norman & Son, electric light contractors, engineers and electricians, 217 to 223, Argyle-road, Glasgow.
Norman, John T., optician, 178, City-road, London, E.C.
Norman, Y., drain pipe manufacturer, Old Quay Pottery, Runcorn.
Normandy, A. S., & Co., mechanical engineers, Opposite Custom-house Station, Victoria Docks, London, E.
Norris & Fletcher, mathematical instrument makers, 33, Cardigan-street, Birmingham.
Norris, S. E., & Co., manufacturers of wire-sewn belting, 56, 57 and 58, High-street, and St. Paul's Works, Shadwell, London, E.
Norris, Geo. Alfred, optician, 13, New Charles-street, City-road, London, E.C.
North, Allen & North, metal merchants, 21, 22 and 23, Snow-hill, Wolverhampton.
North British Railway Co.—telegraph engineers—(Mr. Clements).
North British Chemical Co., Limited, manufacturing chemists, 149, Hope-street, Glasgow.
North British Pottery, 295, Dobbie's-loan, Glasgow.
NORTH BRITISH RUBBER CO., LIMITED, steam packing makers and belting manufacturers, 57, Moorgate-street, London, E.C.; warehouses, 6, Charlotte-street, Mosley-street, Manchester: and 13 and 15, Oswald- street, Glasgow; works, Castle Mills, Edinburgh.
North & Co., iron founders, 30 and 31, Lower Loveday-street, Birmingham.
North Eastern Railway Co.—telegraph engineers—(A. Graves), City office, Great Eastern Station, Liverpool-street, London, E.C.
North Moor Foundry Co., Limited, turbine and water wheel makers, North Moor, Oldham.
North, R., drain pipe manufacturer, Lays Works, Brockmoor, Brierly-hill, Stafford.
Northern District Telephone Co., Limited, Sunderland. Switchboards for connecting Subscribers to an Exchange.
Northern Electric Light, Power & Appliances Co., Limited, 104, Commercial-street, Dundee.
Northern India Rubber Co., South Retford, Retford.
Northern Telegraph Co., 119, Bishopsgate-street, London, E.C.
Northwood Iron Foundry, Upper Dean-street, and Pershore-street, Birmingham.
NORWAY COPPER MINES CO., LIMITED, 52, Gracechurch-street, London, E.C.
Norton, A., & Co., telegraph wire manufacturers, Hulm Hall-lane, Manchester.
Norton, Charles Henry, & William, lead merchants, 52, Silver-street-head, Sheffield.
Norton, John, & Son, zinc merchants, 117 & 119, Queen-street, Sheffield.
NORTON VENTILATOR CO. (Captain F. L. Norton, mechanical engineer), 84, Cannon-street, London, E.C.
Norton, Wm., & Co., copper merchants, 190, Gresham-house, London, E.C.
Norton, W., steam boiler composition maker, 48, Colton-street, Rutland-street, Leicester.
Notting Hill India Rubber Co., 24, High-street, Notting-hill, London, W.
NOWILL, J., & Sons, electro-plate manufacturers and dealers, 32, Hatton-garden, London, E.C.
Nutt, Henry, dross metal merchant and dealer, 79, Lawley-street, Birmingham.
Nuttal, G., zinc worker, Clerkson's-alley, Back-lane, West Mansfield.
Nuttman, B., mechanical engineer, 49, James-street, Lambeth, London, S.E.
Nye, G., electro-gilder and plater, 139, Carlisle-street, London, N.W.

O.

Oak Foundry Company, lamp post manufacturers, Black-street, Glasgow.
Oake, J. B., & Co., mechanical engineers, 62, 69 and 70, Rotherhithe-street, London, S.E.
Oakes, Edmund William, & Co., Limited, refiners, 28, Richard-street, Hockley, Birmingham.
Oakes, J., & Co., lamp post manufacturers, Alfreton Iron Works, Alfreton.
Oakes, Jas., & Co., gas pipe makers, 21 and 22, Wharf-road, City-road, London, N.
OAKEY, W. H., electrical instrument and optical lantern manufacturer, 202, Grange-road, London, S.E.
Oakley & Thacker, earthenware manufacturers, New-street, Longton, Stafford.
Oates, T., electro-plate manufacturer and dealer, 67, Carver-street, Sheffield.
Oddy, Richard James, optician, 66, Islington High-street, London, N.
Oertling, Ludwig, balance maker, Turnmill-street, Clerkenwell-green, London, E.C.
Offenbacher, S., optician, 199A, Bishopsgate-street, Within, London, E.C.

Digitized by Google

Ogle, Richard, copper merchant, 4, St. Ann's-square, Manchester.
Ogston, Geo. Hy., analytical chemist, 22, Mincing-lane, London, E.C.
Ohlson, William, electric bell fitter, 132, Cornwall-road, Lambeth, London, S.E.
Oil Seed Crushing Co., oil-refiners, 8, Catherine-court, Tower-hill, London, E.C.
Oil & Stearine Co., oil merchants, 6, Arthur-street East, London, E.C.
OKES, J. C. R., ENGINEER, *SPECIALITIES*:—GAS ENGINES, "VICTORIA" LEATHER BELTING, WROUGHT-IRON PULLEYS, &c., 39, QUEEN VICTORIA-ST., LONDON, E.C.
Old Hall Earthenware Co., Ld., earthenware manufacturers, Hill-street, Hanley, Stafford.
Old Hill Co., tube manufacturers, Old-hill, Rowley Regis.
OLDFIELD, W., & WALTON, leather driving-band manufacturers, 38, Charlotte-lane, Glasgow.
Oldfield, J., stoneware manufacturer, New Brampton, Chesterfield.
Oldham Boiler Works Co., steam engine boiler makers, Oldham.
Oldham Bros., mechanical engineers, 110, Cannon-street, London, E.C.
Oldis Bros. electric bell fitters, 35, Wilson-street, Finsbury, London, E.C.
Oliver & Arrol, railway signal manufacturers, 29, Leith-walk, Edinburgh.
Oliver, Geo. & Joseph, brass and copper founders, 19, London-street, London, E.C.
Oliver, Geo. & Joseph, iron tank manufacturers, 75, Mark-lane, London, E.C.
Oliver, Geo. & Joseph, coppersmiths and braziers, 37, 38 and 39, Wapping-wall, London, E.
Oliver, Saml., charcoal maker and dealer, 139, Trafalgar-street, Walworth-road, London, S.E.
OLRICK, LEWIS & CO., electrical engineers, boiler makers and engine builders, 27, Leadenhall-street, London, E.C.
Omer, John, optician, 99, Minories, London, E.
Onion, C. H. metal merchant and dealer, Queen-street, Wolverhampton.
Onions, John C., Limited, smiths and tool makers, Bradford-street and Charles Henry-street, Birmingham.
Oppenheim, Wm., bronzist, 43, Farringdon-street, London, E.C.
OPPENHEIMER, J., telegraph engineer, 52, Brown-street, Manchester.
Orchard, J., electro-plate manufacturer and dealer, 20, Upper Hospital-street, Birmingham.
Orchard, John, optician, 100, Kensington High-street, London, W.
Ord, Thomas Roberts, analytical chemist, 52, Lime-street, London, E.C.
Oriental Telegraph Company, 8, Batavia-buildings, 12, Hockins Hey, Liverpool.
Oriental Telephone Company, Limited (W. G. Hall, sec.), 3, Great Winchester-street, London, E.C.
Orme, Frederick, & Co., machine tool makers, 9, St. Andrew's-street, London, E.C.
ORME, J., & CO. (late M. Jackson & Co.), telegraph instrument makers, 65, Barbican, London, E.C.
Orme, Henry Thomas, & Son, opticians, 139, East-road, London, N.
Ormerod & Co., metal merchants, 59, Mark-lane, London, E.C.
Ormerod, Grierson & Co., mechanical engineers, 5, Westminster-chambers, London, S.W.
Ormerod, O. & W., machine strap makers, 70 and 71, Bishopsgate-street Within, London, E.C.
ORMISTON & CO., MANUFACTURERS OF COPPER, COVERED TELEGRAPH AND GERMAN SILVER WIRE, WIRE COVERERS, BRASS MANUFACTURERS, AND METAL MERCHANTS, 25 AND 27, OLD-STREET, ST. LUKE'S, LONDON, E.C.
Ormiston, H., brass finisher, Tweed-street, Bishopwearmouth.
Orr, J. B., sulphate of copper manufacturer, 46, Cannon-street, London, E.C.
Orr, John, india rubber merchant, 13, Brown-street, Glasgow.
Orrock, Robert, glass blower, Wallis-road, Hackney-wick, London, E.
Orwin, Wilson, J. & Co., chemical manufacturers, 29, Quayside, Newcastle.
Osborn, Samuel, & Co., steel tilters, rollers, and forgers, Wicker, Brook-hill and Blonk-st., Sheffield.
Osborn, J. Lee, zinc merchant, 16, Philpot-lane, London, E.C.
Osborne & Co., Limited, bronzists, 11, Great Garden-street, Whitechapel, London, E.
Osborne, J., iron founder, 155, Great Charles-street, Birmingham.
Osborne, Thomas, file manufacturer, Woodside, Norton, Sheffield.
OSLER, F. & C. (glass), 230 and 231, Broad-street and Freeth-street, Birmingham; and at 45, Oxford-street, London, W. Electrolier manufacturer.
OSLER, F. & C., glass globe makers, 100, Oxford-street, London, W.
Otley, Thomas, & Sons, electro-platers, Meadow Works, 33, New Meadow-street, Sheffield.
Ousemann, W. E., & Sons, earthenware manufacturers, Furlong Works, Burslem, Staffordshire.
Outram, Henry, & Son, file manufacturers, Canal Works, Cadman-street, Sheffield.
Ovens, W. & T., mechanical engineers, 54, St. John-street, Clerkenwell, London, E.C.
Ovens, Mrs. Susannah, rope and twine manufacturer, Field Cottage, Newton Moor, Manchester.
Over, Thomas, air-tight glass-case makers, 76, Kingsland-road, London, E.
Overton, F., wire drawer, 34, New-street, Worcester.
Overweg, Charles, wire manufacturer, 21, Great Winchester-street, London, E.C.
Owen, Arthur, brass manufacturer, 121, Shadwell High-street, London, E.
Owen & Bottomley, electro-plate manufacturers and dealers, 17½, Figtree-lane, Sheffield.
Owen Bros., electro-plate manufacturers and dealers, 2, Devonshire-square, Bishopsgate-street Without, London, E.

Digitized by Google

Owen, George, mechanical engineer, 8, Duke-street, Adelphi, London, W.C.
Owen, Henry, crucible manufacturer, 41, Northwood-street, Birmingham.
Owens, S. & Co., nalve and turbine and water-wheel makers, Whitefriars-st., Fleet-st., London, E.C.
Owles, John, mechanical engineer, 59, Macks-road, Bermondsey, London, S.E.
Oxley Bros., iron founder, Union Foundry, Mowbray-street, Sheffield.
Oxley & Cooper, file manufacturers, Parkgate, Rotherham.
Oxley, William & Co., steel manufacturers, Parkgate Steel Works, Parkgate, Rotherham.
Oxley, Edwin J., machine tool maker, Port-street, Manchester.
Oxley, Thomas, file merchant, Norfolk Market Hall, Sheffield.

P.

Pack, William, mechanical engineer, 158, New North-road, London, N.
Padley, W., & Son, electro plate & nickel silver spoon & fork manufacturers, 57, Burgess-street, Sheffield.
Page, E., & Co., mechanical engineers, The Jerusalem, Cowper's-court, Cornhill, London, E.C.
Page, Henry, & Co., lead merchants, 195, Whitechapel-road, London, E.
Page, J., & Son, oil merchants, 159 & 160, Bermondsey-street, London, S.E.
Page, John, wood engraver, 110, Hatton-garden, London, E.C.
Page, T., wood engraver, 83, Vyse-street, Birmingham.
Pain, Wm. Bowyer, wood engraver, 45, Imperial-buildings, New Bridge-street, London, E.C.
Palin, Joseph, rope & twine manufacturer, Witton-street, Northwich.
Palmer & Co., electroliers, lamp, & lustre manufacturers, Little Sutton-street, Clerkenwell, London, E.C.
Palmer & Co., oil refiners, Victoria Oil Works, Stratford, London, E.
Palmer, John & Sons, screw stock and die stock makers, Lightwood Works, Beech-lanes, Harborne, Birmingham.
Palmer, W. R., Limited, iron founder, 91, Bagot-st., 33, Waterloo-st., and 5, Gt. Brook-st., Birmingham.
Palmer, Thomas, brass caster, 15, Staniforth-street, Birmingham.
Palmer's Shipbuilding & Iron Co, mechanical engineers, 57, Gracechurch-street, London, E.C.
Pane, James, & Son, brass & copper tube makers, Denmark-street, Birmingham.
Panier, E., mathematical instrument maker, 37, Farringdon-street, London, E.C.
Pankhurst, J. W., & Co., earthenware manufacturers, Old Hall-street, Hanley, Stafford.
Panklibanon Furnishing Ironmongery Co., Limited, electro gilders & platers, 56, Baker-st., London, W.
Panter & Powditch, air-tight glass-case makers, 10, Little Queen-street, London, W.C.
Panther Lead Company, Limited, lead merchants, 2, Queen-street-place, London, E.C.
Panther Lead Smelting Co., Limited, lead smelters, Avon-street, St. Philip's, Bristol.
Panton, Geo., & Son, mathematical instrument makers, 34, Stockwell-street, Glasgow.
Panulcillo Copper Co., Limited, copper merchants, 23, Great St. Helen's, London, E.C.
Papineau, Rossall, manufacturing chemist, 523, Attercliffe-common, Sheffield.
Parker & Balme, machine tool makers, Stead-street, Halifax.
Parker, Edward, & Co., oil merchants, 33, Seething-lane, London, E.C.
Parker, H., & Son, electro plate manufacturers & dealers, 10, Brook-street, St. Paul's, Birmingham.
Parker, J. & G., mechanical engineers, 1, New York-street, Bethnal-green, London, E.
Parker, J., & Sons, electro platers & nickel silver workers, Alexandra Works, 58, Trinity-st., Sheffield.
Parker, Edward, refiner, 17, Bartholomew-row, Birmingham.
Parker, F., electric bell fitter, 381, Portobello-road, London, W.
Parker, T., lamp, lustre, &c., manufacturer, 60, Cato-street, Birmingham.
Parker, W., electro plater, 14, Grove-chambers, Withy-grove, Manchester.
Parkes, Jas., & Son, electrical instrument makers, 5 & 6, St. Mary's-row, Birmingham.
Parkes, F., medical galvanist, 132, Burton-road, Derby.
Parkes, J., electro gilder & plater, 97, Teddesley-street, Walsall.
Parkes, R., metal merchant, 65, New Hall-street, Willenhall.
Parkes, Thomas, iron tube maker, 285, Broad-street, Birmingham.
Parkes, W., electro gilder & plater, 28, Tower-street, Birmingham.
Parkin & Marshall, electro plate manufacturers & dealers, 68, Cornhill, London, E.C.
Parkin, Walter George, & Co., glass manufacturers, 30 & 32, High-street, Sheffield.
Parkinson, T., lightning conductor manufacturer, Canterbury-street, Blackburn.
Parry, Henry & M., grease manufacturers, 22, Deptford-broadway, London, S.E.
Parry, Henry, consulting engineer, 74, Quayside, Newcastle.
Parry, Wm., stoneware drain-pipe manufacturer, Copperas-lane, Deptford, London, S.E.
Parsons, David & Sons, ironfounders, Carbine-hall, New Furnaces, Pinsnett, near Dudley.
Parsons, Frederick, galvanic apparatus dealer, 20, Gallowtree-gate, Leicester.
Parsons, Geo., mechanical engineer, 32, Manor-place, Walworth, London, S.E.
Parsons, R., machine strap fastener manufacturer, 116, Steelhouse-lane, Birmingham.

Digitized by Google

Parton, T., mining engineer, 36, Dudley-street, West Bromwich.
Partridge & Cooper, parchment makers, 192, Fleet-street, London, E.C.
Partridge, Charles Bollingbroke, plater & gilder, 12, New Bond-street, Coventry-road, Birmingham.
Parvin, Rich. John, glass shade maker, 303, Euston-road, London, N.W.
Pary's Mine Co., Pary's Mine, Amlwich, Anglesey, North Wales.
Passe & Boome, nitric and nitrous acid manufacturers, Weston-street, Bow-common, London, E.
Pass, C., & Son, lead smelters, Bedminster Smelting Works, Bristol.
Pass, John, acid manufacturer, 3, Bishopsgate-street Without, London, E.C.
Pastorelli, Frank, & Co., meteorological instrument makers, 10, New Bond-street, London, W.
Pastorelli & Rapkin, meteorological instrument makers, 46, Hatton-garden, London, E.C.
Patchett, G., telegraph wire manufacturer, Sedburgh-mill, Halifax.
Patent Anhydrous Leather Co., leather driving band manufacturers, Portsmouth.
Patent Asbestos Manufacture Co., Limited, asbestos merchants, 31, St. Vincent-place, Glasgow.
Patent Ingersoll Rock Drill Co., machine tool makers, 60, Queen Victoria-street, London, E.C.
PATENT NUT AND BOLT COMPANY, LIMITED, bolt, nut, screw, and insulator manufacturers, 7, Laurence Pountney-hill, London, E.C.
Patent Nut and Bolt Co., Limited, bolt and nut makers, 120, Buchanan-street, Glasgow.
Patent Nut and Bolt Co., Limited, screw manufacturers, London works, Smethwick, Birmingham.
Patent Office. Commissioners of Patents for Inventions Office, openen daily from ten to four, 25, Southampton-buildings, Chancery-lane, London, E.C.
Patent Office (Samuel Furness Holmes, agent), patent agents, 7, St. James'-row, Sheffield.
Patent Blumbago Crucible Co., porous vase makers, Battersea Works, Church-road, Battersea, London, S.W.
Patent Rivet Co., screw manufacturers, Rolfe-street, Smethwick, Birmingham.
Patent Shaft and Axletree Co., Limited, iron tank manufacturers, 26, Parliament-street, London, S.W.
Patent Steam Boiler Co., boiler makers, 3, Holmhead-street, Glasgow.
Patent Steam Boiler Co., engineers, mechanical, and steam engine boiler makers, 117, Palmerston-buildings, London, E.C.
PATENT VULCANIZED FIBRE CO. (Mosses & Mitchell, sole agents), vulcanized fibre manufacturers, 62, Queen Victoria-street, London, E.C.
Patent Woollen Cloth Co., felt makers, 8, Love-lane, Wood-street, London, E.C.
Paterson Brothers, manufacturing chemists, 250, Buchanan-street, Glasgow.
PATERSON & COOPER (*late Edmund Paterson*), ELECTRIC LIGHT AND POWER AND TELEPHONE ENGINEERS, MANUFACTURERS OF THE AYRTON AND PERRY AND ELPHINSTONE-VINCENT DYNAMO MACHINES, AYRTON'S AND PERRY'S INSTRUMENTS FOR ELECTRIC LIGHT MEASUREMENTS, TELEPHONES, TRANSMITTERS, AND ALL FITTINGS FOR CENTRAL EXCHANGES AND PRIVATE LINES, HOUSE AND MINE SIGNALS, &c., &c., 76, Little Britain, London, E.C., and European Telegraph Works, Pownall-road, Dalston, London, N.
Paterson, H., & Co., electrolier lamp and lustre manufacturers, 19, Eglinton-street, Glasgow.
Paterson, H. W., & Co., manufacturing chemists, 19, Wellington-street, Glasgow.
Paterson, McKinnon, & Co., manufacturing chemists, Clyde Chemical Works, 175, West George-street, Glasgow.
Paterson, Wm., and M., manufacturing chemists, 69, Bath-street, Glasgow.
Paterson, Wm., & Son, zinc manufacturers, 54, North Hanover-street, Glasgow.
PATERSON, EDWARD, manufacturing electrician, 76, Little Britain, London, E.C.
Paterson, Montgomery, manufacturing chemist, Whitevale Chemical Works, 69, Bath-street, Glasgow.
Patis, Bennett, wire worker and weaver, 32, Marshall-street, Golden-square, London, W.
Paton, John, & Co., mechanical engineers, 7, Westminster-chambers, London, S.W.
PATRICK & SON, electric bell manufacturers & electricians, 529, King's-road, Chelsea, London, S.W.
Pattinson & Stead, analytical chemists, 5, Shetland-road, Middlesbrough.
Pattinson, John, analytical chemist, 75, Side, Newcastle.
Pattison, Davidson, and Spencer, ironfounders, Hexham Iron Works, Hexham.
Patton, George, electrolier, Neville-street, Newcastle.
Paul, Benjamin Heratio, analytical chemist, 1, Victoria-street, Westminster Abbey, London, S.W.
Paxton, Wm. James, wire manufacturer, 132, Upper Thames-street, London, E.C.
Payne & Co., composition makers, &c., 37, Eastcheap, London, E.C.
Payne & Griffiths, steam engine boiler fitting manufacturers, 15, Severn-street, Birmingham.
PAYNE & TALBOT, patent agents, 100, Colmore-row, Birmingham.
Peace, W. K. & C., file manufacturers, Eagle Works, Mowbray-street, Sheffield.
Peacock, Chas. Gilbert, optician, 1, Bishopsgate-street Without, London, E.C.
Peacock, D., mining engineer, Oakley, Roebuck-lane, West Bromwich.
Peacock, J., electro-gilder and plater, 38, to 46, New Oxford-street, London, W.C.

Digitized by Google

Peak Forest Lead Mining Company, lead smelters, Peak Forest, Chapel-en-le-Frith.
Peak, Thos., stoneware drain-pipe, manufacturer, Islington-wharf, 38, Graham-street, London, N.
Peakman, Joseph, & Co., brass casters, 107, Floodgate-street, Birmingham.
Pearce, Henry, optician, 52, Park-street, Camden Town, London, N.W.
Pearce, James, mathematical instrument maker, 13, Bedfordbury, London, W.C.
Pearce, John, bolt and nut manufacturer, 242, Moseley-street, Birmingham.
Pearce, Stanley, optician, 161, Wardour-street, Soho, London, W.
Pearce, T. Wm., electric bell fitter, 114, Princess-street, Edgware-road, London, N.W.
Pearce, William, lead merchant, Bridge-street, Broad-street, Birmingham.
Pearson, Emanuel, & Co., ironfounders, 25, Change-alley, Sheffield.
Pearson, Holberry & Co., metal merchants, Argent-place, 173, Rockingham-street, Sheffield.
Pearson, J., & Co., stoneware manufacturers, Whittington Moor Potteries, Newbold, Chesterfield.
Pearson & Knowles, boiler makers, 21, St. Vincent-place, Glasgow.
Pearson, Thos., & Co., galvanizers, 50, Waterloo-street, Glasgow.
Pearson, G., wood engraver, 3, Bolt-court, Fleet-street, London, E.C.
PEARSON, JAMES, battery jar manufacturer, Whittington Moor Potteries, near Chesterfield. London Sample Rooms:—20, Bartlett's-buildings, Holborn-circus, London, E.C.
Pearson, John, mechanical engineer, 114, Golden-lane, Barbican, London, E.C.
Pearson, T. W. steel manufacturer. Works:—Plum-street, Sheffield.
Pearson, Thos., glass shade maker, 3, Tyler's-court, Carnaby Street, Golden-square, London, W.
Pedlar, William, brass manufacturer, 4 and 5, Bird-street, Oxford-street, London, W.
Pedley, Thos., iron founder, 72, Walsall-street, Willenhall.
Peet, G., lightning conductor manufacturer, 45, Bold-street, Liverpool.
Peel, J., mining engineer, Alrewas, Lichfield, Stafford.
Pellatt & Co., glass benders, 17, St. Bride-street, Ludgate-circus, London, E.C.
Pellatt, Wm. C., mechanical engineer, 45, Aspinden-road, London, S.E.
Pemberton, Thos., & Sons, brass founders, 156, Livery-street, Birmingham.
Pembroke & Dingley, electro-plate manufacturers and dealers, 43, Hall-street, Birmingham.
Pendleton & Merrill, electro platers, 5, Holly-street, Sheffield.
Penketh, Jas., wire worker, 22, Market-place, Manchester.
Penn, J., & Sons, mechanical engineers, Greenwich, London, S.E
Penney, D. M., analytical chemist, 15, High-street, Hull.
Penning, J. R., electrician engineer and scientific instrument maker, Southsea Laboratory, 14, Norfolk-street, Southsea.
Pennycad, John Wm., electrolier, lamp and lustre manufacturer, 5, Mile End-road, London, E.
Pennycook, C. H., & Co., lightning conductor manufacturers, 176, Rotten-row, Glasgow.
Pennycook, C. H., Son, & Co., lightning conductor fitters, Catherine-lane, Glasgow.
Pepper, Alfred, mechanical engineer, 21, Union-street, Kingsland-road, London, E.
Pepper, M., zinc worker, Pepper-street, New Basford.
Periam, Edward Thomas, bolt and nut manufacturer, 77, Bagot-street, Birmingham.
Perkins, Angier March, & Son, tube makers, 6, 7 & 8, Seaford-street, Gray's Inn-road, London, W.C.
Peroni, Louis, tube maker, 45, Hatton-garden, London, E.C.
Perreaux & Co., mechanical engineers, 5, Jeffrey's-square, St. Mary's Axe, London, E.C.
Perrins, E., mining engineer, St. Peter's-chambers, Stoke-on-Trent.
PERRY & CO., electric light fitting manufacturers and fitters; lamp and lustre manufacturers; and bronzists, 72, New Bond-street, London, W.
Perry, J. E., metal merchant, Washington-chambers, Queen-street, Wolverhampton.
Perry, M., engine turner, 29, Mary-street, Birmingham.
PERRY, THOMAS, magnet manufacturer, 381 and 146, Coventry-road, Birmingham.
Petchell, W., & Co., manganese merchants, Dock-street, Middlesborough.
Peters & Hughes, oil merchants, 33, Eastgate-street, Chester.
Peters, Stewart, & Sons, coppersmiths, 29, South Shamrock-street, Glasgow.
Peters & Taylor, galvanizers and galvanized iron wire manufacturers, Redcliff-street, Bristol.
Petty & Co., oil refiners, 16 and 18, Dock-street, London Docks, London, E.
Petty, James, & Son, wire workers and spring makers, 20½, Moor-street, Birmingham.
Petty, Jas. Hampton, wire workers and weavers, 4, Bolsover-street, London, W.
Peyton & Peyton Tube Co., Limited, iron tube makers; registered offices, 96, High-street, Bordesley, Birmingham.
Peyton & Son, manufacturing chemists, 20, Oxygen-street and Lister-street, Birmingham.
PFEIL & CO., iron, steel tool merchants; a large stock of amateurs' and electricians' lathes always on show; also all other tools used by electrical engineers, 145, 147, 149, St. John-street, London, E.C.
Pfleiderer, P., mechanical engineer, 37, Farringdon-street, London, E.C.
Phelps, James, & Co., tin merchants, 16, Leadenhall-street, London, E.C.
Phelps, Alfred James, optician, 176, St. John's-road, Hoxton, London, N.
Phelps, Frederick, optician, 83, St. John-street-road, London, E.C.

Digitized by Google

Philip, George E., india rubber merchant, 19, Waterloo-street, Glasgow.
Phillip, P. & Co., manufacturing chemist, 57, Norfolk-street, Glasgow.
PHILLIPS BROS., electricians and electrical wire manufacturers; specialities—gutta percha, india rubber, compound, cotton, silk, flexible cords, telephone wire, &c.; multiple and other wires; special wires for dynamo machines, electric light, leads, &c.; patent non-inflammable insulation for incandescent and arc lighting and dynamo machines. Macintosh-lane, Homerton, London, E.; and the Lea Telegraph Works, Hackney-wick, London, E.
Phillips Bros., glass shade makers and dealers, 106, Praed-street, London, W.
Phillips & Hill, metal merchants, 27, Martin's-lane, Cannon-street, London, E.C.
Phillips, J., & Son, mechanical engineers, 5, 6, and 7, Salisbury-street, Bermondsey, London, S.E.
PHILLIPS & LEIGH, patent agents, 7, Southampton-buildings, London, W.C.
Phillips, Punnett & Thompson, galvanizers, 27, Martin-lane, London, E.C.
Phillips, Sons, & Entwisle, bronze powder makers, 81, Newhall-street, Birmingham.
Phillips, W. P. & G., electrolier lamp, and lustre manufacturers, 155, New Bond-street, London, W.
Phillips, B. J., model maker, 17, Zetland-street, Bromley, London, E.
Phillips, Charles D., shafting manufacturer, Emlyn Works, Newport, Mon.
Phillips, D., jun., mechanical engineer, 35A, Rahere-street, London, E.C.
Phillips, E., telegraph instrument manufacturer, 63, Wilson-street, Derby.
PHILLIPS, FREDERICK C., electric engineer and electrician, 110, Cannon-street, London, E.C.
Phillips, J. F., patent and design registration agent, 7, Southampton-buildings, London, W.C.
Phillips, William, tool maker, 131, Barr-street, Birmingham.
Phillip, Charles J., & Son, electrolier lamp and lustre manufacturers, 23, New-street-square, London, E.C.
Phipson, W., mechanical engineer, 15, Osborn-street, Whitechapel, London, E.
Phœnix Bolt and Nut Company, bolt and nut manufacturers, 90, Cannon-street, London, E.C.
Phœnix Bolt and Nut Company, bolt and nut manufacturers, Handsworth, Birmingham.
Phœnix Electric Light and Power Company, Limited (Walter Dunlop, sec.), 4, George-street, Hanover-square, London, W.
Phœnix, Willoughby A., german silver caster and manufacturer, 2A, New Canal-street, Birmingham.
Phosphor Bronze Company, Limited (wire manufacturers—phosphor bronze), sole manufacturers of phosphor bronze and silico bronze wire for telegraphs, telephones, and other electrical purposes, phosphor bronze for bearings and other wearing parts of machinery, 87, Summer-street, Southwark, London, S.E.
Pickard & Curry, opticians, 195, Great Portland-street, London, W.
Pickard, Joseph Henry, tool maker, 39 and 40, Woodcock-street, Birmingham.
Pickering, T., electro gilder and plater, 28, Cyrus-street, Clerkenwell, London, E.C.
Picking, Hopkins & Co., mechanical engineers, 58, Bow-road, London, E.
Pidgeon, W., electro-gilder and plater, 5, Jerusalem-passage, Clerkenwell, London, E.C.
Piedbœuf & Co., tube makers, 9, New Broad-street, London, E.C.
Piercy & Co., steam engine makers, Broad-street, Birmingham.
Piggott, T. & Co., mechanical engineers, 97, Cannon-street, London, E.C.
Piggott, Thomas, & Co., steam engine boiler manufacturers, Dudley-road and Oozells-st., Birmingham.
Piggott, W. P., medical battery manufacturer, galvanist, and electrician, 16, Argyll-street, Regent-street, London, W.
Pigram, E. S., mechanical engineer, Letchford's-buildings, Three Colt-lane, London, E.
Pike, Edwin John, optician, 166, Great King-street, Birmingham.
Pike, James, mechanical engineer, 48, Phillipp-street, Kingsland-road, London, N.
Pilcher, John Giles & Jeremiah, & Sons, grease manufacturers, Morgan's-lane, Tooley-st., London, S.E.
Pill, Leonard Joshua, wire worker and weaver, 95, Kingsland-road, London, E.
Pilkington Bros. (The St. Helen's Glass Company), glass manufacturers, 85 and 86, Slaney-street, Birmingham.
Pilkington Bros., glass shade makers, 171, Queen Victoria-street, London, E.C.
Pilkington, F. & Co., bolt and nut manufacturers, 41, Redhill-street, Albany-street, London, N.W.
Pilley, William, jun., & Co., electrolier lamp manufacturer, 154, Upper Highgate-street, Birmingham.
Pillischer, Moritz, mathematical instrument maker, 88, New Bond-street, London, W.
PILSEN AND JOEL AND GENERAL ELECTRIC LIGHT COMPANY, LIMITED, St. Stephen's-chambers, Telegraph-street, Moorgate-street, London, E.C.; factory—Maldon-crescent, Kentish Town, London, N.W.
Pimblott, Isaac, steam engine boiler maker, Leftwich, Northwich.
Pinchin, Johnson & Co., oil merchants, 83 to 87, Cable-street, London, E.
Pindar, J. W., mechanical engineer, 75, New Church-road, Camberwell, London, S.E.
Pinder, Bourne & Co., earthenware manufacturers, Nile-street, Burslem, Staffordshire.
Pinder, J., & Co., electro-gilders and platers, 12, Carver-street, Sheffield.
Pinpole Tin Smelting Company, tin smelters, 16, Rood-lane, London, E.C.

Digitized by Google

Pinson & Evans, galvanizers and galvanized iron and wire manufacturers, Dudley-road, Church-lane, Wolverhampton.
Pittam, John, & Co., cotton waste merchants, 82, Augusta-street, East India Dock-road, London, E.
Pitt, T. S., & Co., telegraph engineers, 18, Waingate, Sheffield.
Pitt, J., lead pipe manufacturer, 18, Waingate, Sheffield.
Pitts, Richard, mechanical engineer, 61, Farncombe-street, Bermondsey, London, S.E.
Place, John, mathematical instrument maker, 13, Bull-street, Birmingham.
Plant, J., jun., earthenware manufacturer, Brewery-street works, Hope-street, Hanley, Staffordshire.
Plant, R., mining engineer, Foster-house, Wordsley, Stourbridge.
Plas-yu-Wern Fire Clay Co., manufacturers of stoneware drain pipes, 28, St. Martin's-la., London, E.C.
Plaskynaston Tube Co., tube makers, 158, Leadenhall-street, London, E.C.
Plating Co., Limited, electro gilders and platers, 14, St. Mary's-row, Birmingham.
Platt, W. H., & Co., steam packing makers, Stamford-street, Ashton-under-Lyne.
Platts & Thompson, ironfounders, Challenge Works, Arundel-street, Sheffield.
Player, W, magnetic curative appliance manufacturer, 57, Poland-street, Oxford-street, London, W.
Plowman, James Reynolds, electric bell-hanging engineers, 82, Harrow-road, London, W.
Plum, T. E. D., mechanical engineer, 4, Queen Victoria-street, London, E.C.
Plumb, H., gutta percha manufacturer and dealer, 115A, City-road, London, E.C.
PLUMMER, F., & Co., electrotypers, 1 and 2, Goldsmith's-court, Great New-street, Fetter-lane, London, E.C.
Pochin, Henry, Davis, & Co., manufacturers of sulphate of alumina, Wellington-quay, Newcastle.
Polkey, G., electrolier lamp manufacturer, 235, Icknield-street-east, Birmingham.
Pollard, J. D., & Co., boiler non-conducting composition makers, 35, Fairfield-road, London, E.
Pollock & Brown, copper merchants, Union-wharf, Southampton.
Pollock, And. S., lightning conductor fitters, 489, St. Vincent-street, Glasgow.
Pontifex, E., & W., & J. Wood, lead tube makers, 7, Shoe-lane, London, E.C.
Pontifex (Russell) & Co., coppersmiths and braziers, 14, Upper St. Martin's-lane, London, W.C.
Pontifex, Samuel, & Co., electrolier, lamp and lustre manufacturers, 22, Coleman-street, London, E.C.
Pontifex & Wood, manufacturing chemists, 33, Hope-street, Glasgow.
Pontifex, Joseph How, india rubber manufacturers, 4 and 5, Holden-terrace, London, S.W.
Pool, Luke, & Son, screw makers, 132, Upper Thames-street, London, E.C.
Poole & Son, earthenware manufacturers, John-street, Stoke-on-Trent.
Poole, Alex., telegraph wire manufacturers, 61, Princip-street, Birmingham.
Poole, Arthur James, brazier, 37, Dean-street, Birmingham.
Poole, Isaiah, steam engine boiler maker, 16, Egerton-street, Chester.
POOLE, J., electro gilder and plater, 73, Northwood-street, Birmingham.
Poole, Peter, oil merchant, Witton-street, Northwich.
Poole, Samuel, optician, 144, Fleet-street, London, E.C.
Pooley, H., & Son, mechanical engineers, 89, Fleet-street, London, E.C.
Pope, Wm., & Son, mechanical engineers, 190 and 192, Edgware-road, London, W.
Poplar, W., electro gilder and plater, 18, Wynn-street, Birmingham.
PEPPLEWELL, COLTON, & Co., patent agents, 32, Southampton-buildings, London, W.C., and Albert-street, Derby.
Port Dundas Pottery Co., pottery manufacturers, 66, Bishop-street, Port Dundas, Glasgow.
Port Nigel Lead Co., lead merchants, 7, Union-court, Old Broad-street, London, E.C.
Porteous & Crawford, galvanizers, 94, Elliot-street, Glasgow.
Postal Telegraph Engineers, telegraph engineers, 9 and 10, Peel-buildings, Lower Temple-street, Birmingham.
Postal Telegraph Schools, teachers of telegraphy and electrical science, Telegraph-street, Moorgate-street-buildings, London, E.C.
Postal Telegraph Stores—A Bell, superintendent, Gloucester-road, Regent's-park, N.W.; Captain McGregor Greer, superintendent, Walpole-street, New Cross-road, London, S.E.
Poths, H., & Co., chemical glass and apparatus manufacturers, 4, Sugarloaf-court, Leadenhall-street, London, E.C.
Potier, Wm., & Son, machine strap makers, 33, Green-street, Wellington-street, Blackfriars-road, London, S.E.
Potosi Co., electro gilders and platers, 20 and 21, Barr-street, Birmingham.
Potter, Thomas, and Sons, mechanical engineers, 361, Oxford-street, London, W.
Potter, F. W., wire drawer, brass, h.c. copper, German silver, platinum, &c., 16, Hill-street, Finsbury, London, E.C.
Potter, John Dennett, optician, 31, Poultry, London, E.C.
Potter, Thos. Sidney, oil merchant, 3, Bishopsgate-street-within, London, E.C.
Potts, James, optician, 102, Broad-street, Birmingham.
Poupard, Charles George, cotton waste merchant, 271, Romford-road, Stratford, London, E.
Powell, Bishop, & Stonier, earthenware manufacturers, Stafford-street, Hanley, Staffordshire.

Digitized by Google

Powell, James, & Sons, glass blowers, Temple-street, Whitefriars, London, E.C.
Powell & Lealand, opticians, 170, Euston-road, London, N.W.
Powell, Charles Marshall, steam engine boiler fitting manufacturer, 37 and 38, Aston-road, and 65, 66, and 67, Bagot-street, Birmingham.
Powell, Henry, iron founder, Berners-street, Lozells, Birmingham.
Powell, John (estab. 1773), screw stock and die tap makers, 76, Oxford-street, Birmingham.
Powell, Samuel, chemical glass blower, 57, Newcomen-street, London, S.E.
Power, F. A., & Co., telegraph wire manufacturers, Midland Wire Mills, Saltley, Birmingham.
Power, F. A., & Co., wire manufacturers, 63, Bishopsgate-street Within, London, E.C.
Power, John H., & Co., electrolier and chandelier makers, 79 and 71 (37 and 38) Camden-street, Birmingham.
Power, Joseph Blakesley, wood engraver, 17, Jewry-street, London, E.C.
Powers, Alfred, metal merchant and dealer, 16, Wrentham-street, and 147, Granville-street, Birmingham.
Powis, Charles & Co., engineers, 60, Gracechurch-street, London, E.C.
Powis, David, wire worker and weaver, 34, Floodgate-street, Birmingham.
Poynter, John, & Son, manufacturing chemists, 8, Prince's-square, Glasgow.
Prater, H., wood engraver, 152, Fleet-street, London, E.C.
Pratt, F., & R., & Co., earthenware manufacturers, Fenton Potteries, Fenton, Stoke-on-Trent.
Pratt & Simpson, earthenware manufacturers, Lane Delpa Pottery, Park-street, Fenton Culvert, Stoke-on-Trent.
Pratt, James Jerrane, & Son, antimony refiners, 79, Queen-street, London, E.C.
Pratt, Joseph, optician, 43, Oxford-street, London, W.
Pratt, W. J., telegraph wire manufacturer, Well-lane, Halifax.
Preece, W. H., telegraph engineer, Gothic-lodge, Wimbledon, London, S.W.
Preist & Co., opticians, 514, Oxford-street, London, W.
Preller's Leather Co., machine strap makers, 57, Lant-street, London, S.E.
Preston & Bishop, iron founders, Clement-street, Birmingham.
Preston, J. A., & Co., wire rope manufacturers, Preston-street, London-road, Glasgow.
Preston, William & Co., steam engine boiler manufacturers, Boiler Works, Walter-st., Nechells, B'ham.
Preston, Abraham, steam engine boiler manufacturer, 110, Dartmouth-street, Birmingham.
Preston, Edward, joiners' tool maker, 22, 23, & 24, Whittall-street, Birmingham.
Price, Charles, & Co., oil merchants, 12 & 13, Upper Thames-street, London, E.C.
Price & Heanes, anti-friction metal makers, 69, Ratcliff-street, Bristol.
Price, Lea, C. & Co., mechanical engineers, 9, Adam-street, Adelphi, W.C.
Price, Robert & Co., iron founders, Slough-lane, Winson-green, Birmingham.
Price & Scott, steam engine makers, 39, Sefton-street, Liverpool.
Price, Astley P., analytical chemist, 47, Lincoln's-inn-fields, London, W.C.
Price, C., electro-plater and gilder, and gold cutter; all kinds of silver frosting, 5, Hylton-st., B'ham.
Price, Dr. David S., analytical chemist, 26, Great George-street, London, S.W.
Price, Henry Butterill, wire drawer, Attercliffe Wire Works, Sheffield.
Price, Thos., brass manufacturer, 24, Wyndham-street, Bryanston-square, London, W.
Pride, J., electro gilder and plater, 17, Union-street, Oxford-street, London, W.
Priest & Co., screw manufacturers, Pea Croft Brass Works, Sheffield.
Priest, Rowland, pulley maker, Cradley-heath, near Brierley-hill, B'ham. Telegrams to Cradley-heath.
Priestman Bros., mechanical engineers, 52, Queen Victoria-street, London, E.C.
Prime, T., & Son, electro gilders and platers, 18, Northwood-street, Birmingham.
Prime, Thomas & Son, electro gilders and platers, 5, Charterhouse-street, London, E.C.
Primrose & Co., lead manufacturers, Corporation-street, Sheffield; and Carr-lane, Hull.
Primrose, T., & Son, coppersmiths, 28, York-street, Glasgow.
Primrose, E., coppersmith, 117, West Campbell-street, Glasgow.
Prince & Symmons, electrolier lamp and lustre manufacturers, 128, 130, Commercial-street, London, E.
Pring & Son, wire workers, Mount Pleasant Works, Elworth, Sandbach.
Pringle & Alexander, manufacturing chemists, 18, Great Enoch-square, Glasgow.
Pringle, R., & Co., electro gilders and platers, 42, Clerkenwell-road, London, E.C.
Priory Chemical Co., Limited, manufacturing chemists, 37, Napiershall-street, Glasgow.
Pritchard, Offor & Co., oil merchants, 24, Crutched-friars, London, E.C.
Pritchard, George, screw manufacturer, Scotland-street, Birmingham.
Pritchard, T., tube maker, 4, Corbet-court, Gracechurch-street, London, E.C.
Pritchard, T., tube manufacturer, Friars-street, Merty's Croft, Wednesbury.
Pritchett, G. J., mechanical engineer, 12, John-street, Adelphi, London, W.C.
Probert, Isaac, electric engineer, 151, Penton-place, Walworth-road, London, S.E.
Proctor, J., earthenware manufacturer, Heathcote Pottery, Heathcote-road, Longton, Stafford.
Proctor & Co., pulley and shafting makers, Stevenage, Herts.
Proctor, Wm. Wilson, analytical chemist, 33 & 35, Side, and 5, Dean-street, Newcastle-on-Tyne.

Digitized by Google

PROTECTOR LAMP & LIGHTING COMPANY, LIMITED, Worseley, Manchester.
Prout, Samuel, hinge maker, 22, Silver-street, London, W.
PROVINCIAL (BRUSH) ELECTRIC LIGHT & POWER COMPANY, LIMITED, 110, Cannon-st., London, E.C.
Pugh & Glover, earthenware manufacturers, Pelham-street Works, Pelham-street, Hanley, Stafford.
Pugh, Charles Henry, screw manufacturer, Whitworth Works, Rea-street South, Birmingham.
Pugh, George, chemical merchant, Dunster-house, Mincing-lane, London, E.C.
Pulsometer Engineering Company, mechanical engineers, 61 & 63, Queen Victoria-street, London, E.C.
Pulvermacher, J. L., & Co., medical battery manufacturers, galvanists, & electricians, 194, Regent-street, London, W.
Purcell & Nobbs, electric bell manufacturers, 89, Cleveland-street, Fitzroy-square, London, W.
Purchase & Canham, wood engravers, 168, Fleet-street, London, E.C.
Purden, Thomas, metal merchant and dealer, 128 and 130, Lawley-street, Birmingham.
Purdon & Stokes, opticians, 126, Great Tyndal-street, Birmingham.
Purnell, J., model maker, "Atlas Works," Webber-street, New-cut, Lambeth, London, S.E.
Pursall, J., electro gilder and plater, 109, Vyse-street, Birmingham.
Puttock, George, wood engraver, 9, Essex-street, Strand, London, W.C.
Pütz, Francis Joseph, chemical merchant, 79, Mark-lane, London, E.C.
Pye, William Charles, mathematical instrument maker, 16, Nelson-terrace, City-road, London, N.
Pyle, James, coppersmith, 86, Dale-street, S.S., Glasgow.

Q.

Queenborough Chemical Co., sulphate of ammonia manufacturers, 18, Billiter-street, London, E.C.
Quin, James, & Co., steam packing makers, 112, Queen Victoria-street, London, E.C.
Quin, Jas., & Co., india rubber manufacturers, 34, St. Enoch-square, Glasgow.
QUIRK, BARTON, & CO., copper, lead, zinc, and tin merchants; tin and lead-foil manufactured especially for electrical purposes, copper wires, etc., 61, Gracechurch-street, London, E.C.
Quitmann, J. & Co., wire drawers, 132, Queen Victoria-street, London, E.C.
Quitmann, Carl, glass globe manufacturer, Jewin-crescent, London, E.C.

R.

RADCLYFFE, A. H. W., electrical apparatus manufacturer, 5, Cann's-lane, High-street, Birmingham.
Radclyffe, H. G., electro-plate manufacturer and dealer, 58, Frith-street, Soho, London, W.
Ragosine, V. I., & Co., oil merchants, 22, Leadenhall-street, London, E.C.
Railway and Electrical Appliances Company, Limited (A. Duff, Manager), electrical sundry apparatus makers, 31, Lombard-street, London, E.C.
Railway Steel and Plant Company, Limited, railway signal manufacturers, Newton Heath, Manchester.
Rait & Gardiner, mechanical engineers, 155, Fenchurch-street, London, E.C.
Rait & Lindsay, boiler makers, 60, Elliot-street, Glasgow.
Ramage & Whitehead, bolt and nut makers, 30, Cadogan-street, Glasgow.
Rampling, William, consulting engineer, Quarry Bank, Higher Tranmere.
Ramsay, Alexander, coppersmith, 22, Waterloo-street, Glasgow.
Ramsay, W., glass bender, 29, Farringdon-street, London, E.C.
Ramsden, Camm, & Co., manufacturers of telegraph wire of high conductivity, steel wire for submarine cables, also wire for colliery rope and ships rigging, Brighouse, Yorkshire.
Ramsden & Son, mechanical engineers, 177, Kingsland-road, London, E.
Ramsden, Charles, wire manufacturer, Rowell-bridge, Stannington, Sheffield.
Ramsden, Charles, wire manufacturer, Loxley wire mills, Loxley, near Sheffield.
Ramsey, W., glass shade maker and dealer, 29, Farringdon-street, London, E.C.
Randle, W. & Co., braziers, 103 and 104, Lionel-street, Birmingham.
Rankin, R. & Co., boiler makers, 35, Paisley-road, Glasgow.
Ransome's, Head & Jefferies, steam engine boiler makers, 9, Gracechurch-street, London, E.C.
RANSOME, JOSSELYN & WOODS, electrical and mechanical engineers, Battersea Foundry, Wellington-road, London, S.W.
Ransome's & Rapier, mechanical engineers, 5, Westminster-chambers, London, S.W.
Ransome's & Rapier, railway signal manufacturers, Waterside Iron Works, Ipswich.
Ransome, S. & E. & Co., mechanical engineers, 10, Essex-street, Strand, London, W.C.
Ransome's, Sims & Head, mechanical engineers, 9, Gracechurch-street, London, E.C.
RAWORTH, JOHN S., electric light engineer, 6, St. Mary's Gate, Manchester.
Raworth, W., electric bell fitter, Arkwright-street, Nottingham.

Digitized by Google

Ratcliff, Joseph & Sons, brass founders, 21 to 31, New Summer-street, Summer-lane, and 7, Unsett-street, Birmingham.
Ratcliff, Edmund, electrolier lamp and lustre manufacturer, 292, High Holborn, London, W.C.
Ratcliff, John Francis, rolling mills and rolled metal manufacturer, 1 and 2, Mary Ann-street, St Paul's-square, Birmingham.
Ratcliffe, J. H., cotton driving band maker, Kinder Lee Mills, Charlesworth, Broadbottom.
Rawson, Barker & Co., lead manufacturers, 69, Shoreham-street, Sheffield.
Rawson, Thos., mechanical engineer, 6, Wimbourne-street, New North-road, London, N.
Rawson, T., electric bell fitter, Moseley-street, Ripley, Derby.
Ray, Mead & Co., mechanical engineers, 38, Upper Thames-street, London, E.C.
Ray, John, glass blower, 11, Lucretia-street, Lower Marsh, Lambeth, London, S.E.
Rayne & Burn, copper merchants, 20, Broad-chare, Newcastle-on-Tyne.
Rayner, Chas., mechanical engineer, 493, Kingsland-road, London, E.
Rayment, Wm. & Co., glass benders, 157, St. John-street, London, E.C.
Rea, Wm. Richard, melter, 3, Greek-street, Soho, London, W.
Reade Bros. & Co., manufacturing chemists, Victoria-street Works, Monmore-green, Wolverhampton
Reade & Co., silk spinners, Brook and Stonehouse-green Mills, Congleton.
Reading, J. & Sons, electro-plate manufacturers and dealers, 6, Spencer-street, Birmingham.
READING IRON WORKS COMPANY, LIMITED, mechanical engineers, Reading, Berks.
Reading, N. C. & Co., electro-plated ware manufacturers, 186 and 187, Warstone-lane, Birmingham.
Redman, J. B., manufacturing chemist, 79, West Regent-street, Glasgow.
Ready, Alf. John, chemical merchant, 47, Tower-chambers, Finsbury-pavement, London, E.C.
Redcliffe Crown Galvanized Iron Company, galvanizers, 118, Cannon-street, London, E.C.
Reddall, Wm., the patent box steel curb, permanent way for electric wires, 10, South-street, Finsbury, London, E.C.
Reddaway, F. & Co., machine strap fastener makers, Cheltenham-street, Pendleton, Manchester.
Riddell, J. G., electrician, 18, King-street, Manchester.
Reddle, J. G., lightning conducting manufacturer, King-street, Manchester.
Redfern, J., electro-gilder and plater, 5, Shawcross-fold, Mill-gate, Stockport.
Redfern, Jos., manufacturing chemist, 67, West Nile-street, Glasgow.
REDMOND, D.D., M.D., electrician and consulting electrical engineer, 126, Sandford-road, Dublin.
Redmund's & Gollop's Works, hinge makers, Charles-street, City-road, London, E.C.
Redpath & Paris, engineers, Church-row, Limehouse, London, E.
Redruth Tin Smelting Company, tin merchants, Golden Heart-wharf, Dowgate, London, E.C.
Redwood, Dr. Theophilus, analytical chemist, 17, Bloomsbury-square, London, W.C.
Redwood, Boverton, F.C.S., analytical chemist, 85, Gracechurch-street, London, E.C.
Reed, Michael Alfd. & Co., antimony dealers, 12, Fenchurch-street, London, E.C.
Reed, A. H., mechanical engineer, 90, Cannon-street, London, E.C.
Reeve, T. & Son, mechanical engineers, 20, Laurence Pountney-lane, London, E.C.
Reeves, J. earthenware manufacturer, Market-street, Felton, Culvert, Stoke-on-Trent.
REID RROS., manufacturers of electric light apparatus, electric alarms, electric lamps (arc and incandescent), lightning conductors, telegraph insulators, and Dynamo magneto and electric machines, 12, Wharf-road, London, N.
Reid & Cook, steel manufacturers and merchants, 2, Germiston-street, Glasgow.
Reid, Wm. & Co., machine tool makers, 11, Hart-street, Mark-lane, London, E.C.
Reid, H. & Son, electric bell fitters, 39, Robertson-lane, Glasgow.
Reid & Kane, coppersmiths, 43, Robertson-lane, Glasgow.
Reid, John, bolt and nut maker, 31, King-street, S.S., Glasgow.
Reid, Wm., M. A., mathematical teacher, High School, Glasgow.
Reinhard, G., wire drawer, 9, New Broad-street, London, E.C.
Remmell, J., optician, 8, King-street, Derby.
Rendle, Wm. E, mechanical engineer, 3, Westminster-chambers, London, S.W.
Rennie, James & Co., metal merchants and dealers, 19, Exchange-bldgs., Stephenson-place, Birmingham.
Rennie, J. & G., steam engine boiler makers, 60, Holland-street, Blackfriars, London, S.E.
Rennie, John, india rubber manufacturer and dealer, 138, High Holborn, London, W.C.
Renton, Robert, steel manufacturer, Yorkshire Steel and File Works, Napier-street, Sheffield.
Reside, T., machine tool maker, Rastrick, Brighouse.
Rothwell, Peter, electrolier lamp and lustre manufacturer, 78, Hampstead-road, London, N.W.
Rellie, Jas., mechanical engineer, 27, Kirby-street, Hatton-garden, London, E.C.
Revill, J., electric bell fitter, St. Mark's-lane, Newark.
Rexter, Francis, mechanical engineer, 56, Castle-street, Southwark Bridge-road, London, S.E.
REYNOLDS & CO., flat wire especially prepaired for fixing conducting wire, 57, New Compton-street, London, W.C.
Reynolds, A. & Co. mechanical engineers, 13, Queen-street, Tower-hill, London, E.C.
Reynolds, F. & Co., ships compass makers, 547, Commercial-road-east, London, E.

Digitized by Google

Reynolds & Son, opticians, 32, Crutchedfriars, London, E.C.
Reynolds, G., wire drawer, Summerford-brook, Willenhall.
Reynolds, Thomas, asbestos manufacturer, 100, Aston-road, Birmingham.
REYNOLDS, W. T., P.H.D., electrician, 2, St. Helen's-terrace, Mile End-road, London, E.
Reyre, Albert & Co., oil merchants, 7, Queen-square, Eldon-street, Finsbury, London, E.C.
Ricardo, Elias, hinge maker, 19, Commercial-road, London, E.
Rice, R. S. analytical chemist, 33, Wharf-street, Leicester.
Rich, James, mechanical engineer, 28, Little Duke-street, Houndsditch, London, E.
Richard & Co., opticians, 24, Cannon-street, London, E.C.
Richard, John, oil merchant, Little Tower-street, London, E.C.
Richards, Glaskin, & Co., machanical engineers, 52, Queen Victoria-street, London, E.C.
Richards, Hy. Scott, oil merchant, 160, Rolfe-street, Smithwick, Birmingham.
Richards, Kearne, & Co., alkali manufacturers, Malkin's-bank, Betchton, Sandbach.
Richard's Plastic Metal Co, metal merchants & dealers, 95, Charlotte-street, St. Paul's-sq, Birmingham.
Richardson Bros., copper merchants, 2, Queen-street, Newcastle-on-Tyne.
Richardson & Co., copper merchants, Copper Ore Wharves, Swansea.
Richardson, Ellson & Co., electric bell fitters, 243½, High Holborn, London, W.C.
Richardson, Ellson & Co. lamp-post manufacturers, Lower Ford-street, Coventry.
Richardson, E. & J., leather driving band makers, Elswick Leather Works, Elswick.
Richardson & Hobson, electrolier manufacturers, 111, Pond-street, Sheffield.
Richardson, J., & Co., manufacturing chemists, Friar-lane, Leicester.
Richardson, Koolman, & Isger, electrotypers, Harp Alley, Farringdon-street, London, E.C.
Richardson & Son, cotton band makers, Salem Mills, New Mills, Stockport.
Richardson, Chas., melter, Bow Common-lane, London, E.
Richardson's Electro Plate Warehouse, electro platers, 56, South-bridge, Edinburgh.
Richardson, J., wire drawer, 1, Bank-buildings, Manchester-road, Bradford.
Richardson, Jas. Edwin, india rubber manufacturer, 12, Duke-street, London-bridge, London, S.E.
Richardson, J. T. H., glass manufacturer, Castle Glass Works, Hatton, Tutbury, Burton-on-Trent.
Richardson, J. W., metal merchant, Ferry-road, Middlesborough.
Richardson, R., electro plate manufacturer & dealer, 28, Holborn-viaduct, London, E.C.
Richardson, R., electro gilder & plater, Norfolk-street, Sheffield.
Richardson, T. R., medical galvanist, 1, South-terrace, London-road, Derby.
Richardson, Wm., electric bell fitters, Lord-street, Runcorn.
Richmond, J. & Co., mechanical engineers, 31 & 32, Kirby-street, Hatton-garden, London, E.C.
Richmond, J. & Son, mechanical engineers, Stafford-road, North Bow, London, E.
Richmond, David, tube maker, City Tube Works, 35, Rose-street, S.S., Glasgow.
RICKARD, WILLIAM, wire manufacturer, Derby; E. Holloway, agent, 2, Gutter-lane, Cheapside, London, E.C.
Riddel, W., & Co., steel manufacturers & merchants, 49, Jamaica-street, Glasgow.
RIDDELL W., & CO., wire drawers, wire workers, & weavers, 47, Wesleyan-street, Glasgow.
Riddell, J. G., lightning conductor manufacturer, 18, King-street, Manchester.
Rider, F. E., mechanical engineer, 80, Keeton's-road, Bermondsey, London, S.E.
Ridgacre Tube Co., tube manufacturers, Church-lane, Hill-top, West Bromwich.
Ridgways, W, earthenware manufacturer, Bedford Works, Hanley, Stafford.
Ridley, J. C., manganese merchant, King-street, Newcastle-on-Tyne.
Ridley, Thos., chemical manufacturer, Burn-bank, Quayside, Newcastle.
Ridley, W., electric bell fitter, High-street, Market Harborough.
Ridsdale & Co., coppersmiths & braziers, 54, 55, & 56, Minories, London, E.
Ridyard, W., manufacturing chemist, Oxford-street, Bilston, Stafford.
Rigby, Josiah, & Co., cotton waste merchants, Neptune Works, Temple-street, Manchester.
Rigby, J., & Sons, telegraph wire manufacturers, Cannon-street, Adelphi, Salford, Manchester.
Rigby, G. F., wire drawer, Furnival-street, Sheffield.
Rigby, J., earthenware manufacturer, Milton, Stoke-on-Trent.
Rigg, James, mechanical engineer, 145, Queen Victoria-street, London, E.C.
Riley, Edward, assayer, 2, City-road, London, E.C.
Rileys, Anti-incrustation Boiler Composition Co., composition makers; &c., 17, Silver-street, Falcon-square, London, E.C.
Rimbault, J. H., wood engraver, 39, Maiden-lane, Covent-garden, London, W.C.
Rinder & Morgan, hinge makers, East-street, Cambrige-road, London, E.
Ring, Geo., glass shade maker, 144, Kingsland-road, London, E.
River Plate Telephone & Electric Light Co., Limited., electric light apparatus makers, 6, Lombard-street, London, E.C.
Rhenish Bolt & Nut Co., bolt & nut manufacturers, 18, Finsbury-circus, London, E.C.
Rhodes, B., valve manufacturer, 240, Bow-road, London, E.
Rhodes, Hiram Fredk. magnet manufacturer, 123, Ledsam-street, Birmingham.

Digitized by Google

Rhodes, J. wire drawer, 8, Northgate, Bradford.
Rhodes, J., wire drawer, Brook Foot Wire Mills, Horsforth, Leeds.
Rhodes, J. A., electro-gilder & plater, 53, Howard-street, Sheffield.
Robb, G. S., & Co., tube makers, 99A Waterloo-street, Glasgow.
Robbins & Co., brass founders, Fountain Works, Fountain-street, Dudley.
Robbins, J. & C., electric bell fitters, 56, Church-lane, Wolverhampton.
Robbins, John, optician, 165, Aldersgate-street, London, E.C.
Robe, Chas., & Son, crucible manufacturers, Havelock Works, Walker-street, Sheffield.
Robey & Co., high-speed engine manufacturers for electrical purposes, Globe works, Lincoln.
ROBEY, JOHN THOMAS, patent lead & chemical burners, 194, Bow-road, London, E.
Roberts & Belk, electro-plate manufacturers & dealers, 24, Holborn-viaduct, London, E.C.
Roberts, Dale, & Co., chemical manufacturers, St. James's-street, Latchford, Warrington.
Roberts, J., & Son, copper merchants, 30, East-street, Leeds.
Roberts, Beckett, & Kirk, consulting engineers, 4, St. Werburgh's-mount, Chester.
Roberts, John & Saml., gas pipe makers, 3, Queen-street-place, London, E.C.
Roberts, J. & S., tube manufacturers, Swan & Sml. Heath Foundries, Swan Village, West Bromwich.
Roberts & Timm, electro-platers, 23, Orchard-lane, Sheffield.
Roberts, D., electric bell fitter, 68, Whitefriars-lane, Coventry.
Roberts, H., wire worker & wire cloth manufacturer, 46, Bardowie-street, Glasgow.
Roberts, Harry, optician, 6, Station-buildings, South Kensington Station, London, S.W.
Roberts, Mrs. H., file manufacturer, 31, Spital-street, Sheffield.
Roberts, Percy, wood engraver, 9, Essex-street, Strand, London, W.C.
Roberts, T. R., metal merchant, 4, Peel-buildings, Lower Temple-street, Birmingham.
Robertson, Alex. & Co., tinfoil manufacturers, Elthorne-road, Upper Holloway, London, N.
Robertson, A. W. & Co., mechanical engineers, Custom House Engine Works, Victoria Docks, London, E.
Robertson Bros., copper merchants, 32, Timber-bush, Leith.
ROBERTSON, BROOM & CO., patent & design registration agents, 166, Fleet-street, London, E.C.
Robertson, M. W. & Co., steel manufacturers & merchants, Fleming-street, Duke-street, Glasgow.
Robertson, D. & T., electro-platers, 284 and 286, Sauchiehall-street, Glasgow.
Robertson, Chas. S., manufacturing chemists, Westmuir, Parkhead, Glasgow.
Robertson, Peter, india rubber manufacturer, 32, Queen-street, Glasgow.
Robinson & Co., electrotypers, 151, High Holborn, London, W.C.
Robinson & Campbell, manufacturing Chemists, Ruchill-bridge, Maryhill, Glasgow.
Robinson, Daniel & Sons, bolt and nut manufacturers, 19, Gracechurch-street, London, E.C.
Robinson, Edw. Hy., & Co., opticians, 53, Bishopsgate-street Within, London, E.C.
Robinson, T., & Co., steam engine makers, Oldham-road, Rochdale.
Robinson, Thos., & Son, steam engine boiler manufacturers, 145, Cannon-street, London, E.C.
Robinson, W. E. & Co., manufacturing chemists, 13, Milestone-lane, Leicester.
Robinson, A. E., machine manufacturer, 29, Princess-street, Manchester.
Robinson, Geo., bolt and nut manufacturer, 223, Westferry-road, Millwall, London, E.
ROBINSON, H., lamp post manufacturer & tube maker, Studkins Iron Works, Stourbridge.
Robinson, A. R., mechanical engineer, 7, Union-court, Old Broad-street, London, E.C.
Robinson, T. J., electrical instrument maker, Helmet-court, 338, Strand, London, W.C.
Robinson, W., electro-plate & nickel silver spoon & fork manufacturer, 5, Hockley-terrace, Icknield-street East, Birmingham.
Robotham, S., wire drawer, 55, Bradford-street, Birmingham.
Rockhill, Fredk. John, & Co., india rubber manufacturers, 10, Blackfriars-road, London, S.E.
Rocks Tin Mining Co., Limited, 32, Walbrook, London, E.C.
Roddrop Fell Mining Company, lead manufacturers, Alston-moor, Cumberland.
Roding Chemical Company, copperas manufacturers, 12, Lime-street, London, E.C.
Roebuck, Wm., mechanical engineer, 4, Bishopsgate-street, Within, London, E.C.
Roffey, C., draughtsman, 95, Claughton-road, Birkenhead.
Roger, R. & Co., mechanical engineers 11, Hart-street, Mark-lane, London, E.C.
Roger's Electric Light & Power Co., Limited, 47, Holborn-viaduct, London, E.C.
Rogers, H., Sons & Co., copper merchants, 39A, New-street, Birmingham.
Rogers, Henry, Sons & Co., metal merchants, 76, Eyre-street, Sheffield.
Rogers, J., & Sons, Limited, electro-plate manufacturers & dealers, 6, Norfolk-court, Sheffield.
Rogers, D., mining engineer, Tansey-grange-house, Pensnett, Dudley.
ROGERS, F. M., electric light patentee & contractor, 21, Finsbury-pavement, London, E.C.
Rogers, G. F., telegraph sub-marine cable manufacturer, 5, Great Winchester-street, London, E.C.
Rogers, Hy., electro-gilder & plater, 91, Balsall-heath-road, Moseley-road., Birmingham.
Rogers, John, grease manufacturer, St. Benet's-chambers, Fenchurch-st., London, E.C.
Rogers, John, felt maker, 1, Fenchurch-street, London, E.C.
Rogers, J., wire drawer, 79, Victoria-street, Belfast.
Rogers, Mrs. E., steam boiler maker, 18, Queen's-walk, Nottingham.

Digitized by Google

Rogerson & Cooper, machine tool makers, back of 32, Garden-street, Sheffield.
Rogo & Rocket Proprietors, composition makers, &c., 106, Fenchurch-street, London, E.C.
Rollason, Abel & Son, metal merchants & dealers, 9, Mary-street, Caroline-street, Birmingham.
Rollason, Carmi, A. T., & Co., steel wire manufacturers, 40, Richard-street, Dartmouth-street, B'ham.
Rollings, A., mechanical engineer, 82, Newman-street, Oxford-street, London, W.
Rollins, John G. & Co., oil merchants, Old Swan-wharf, Upper Thames-street, London, E.C.
Rooke, E., tubular boiler brush manufacturer, Mary-street, Caroline-street, Birmingham.
Roper & Edwards, electro-plated ware manufacturers, 45, Augusta-street, Birmingham.
Roper, Robert, steel fitter, roller and forger, Millsands, Sheffield.
Rose & Co., electro-platers and gilders, 13, Augusta-street, Birmingham.
ROSE, SIR W. A., & CO., refined oil & grease manufacturers, 66, Upper Thames-street, London, E.C.
Rose, Jas. & Sons, bolt and nut makers, Govan Bolt & Rivet Works, Helen-street, Govan, Glasgow.
Rose, Downs & Thompson, mechanical engineers, 35, Queen Victoria-street, London, E.C.
Rose, D., galvanizer & galvanized iron wire manufacturer, Moxley, Wednesbury.
Rose, James, screw maker, Helen-street, Govan, Glasgow.
Ross, Alex. & Co., steam packing makers, Wright's-buildings, Grange-road, Bermondsey, London, S.E.
Ross & Co., mathematical instrument makers, 112, New Bond-street, London, W.
Ross & Duncan, boiler makers, 23, Hyde-park-street, Glasgow.
Ross, Wm., composition maker, &c., Horseshoe Iron Wharf, Old Kent-road, London, S.E.
Rosser & Russell, mechanical engineers, 22, Charing-cross, London, S.W.
Rossini, A., wire worker & wire cloth manufacturer, 125, Barrack-street, Glasgow.
Rothenburg, Hyman, india rubber manufacturer and dealer, 450, Mile-end-road, London, E.
Rotherhoe, J. & Co., mechanical engineers, 47 & 48, King William-street, London, E.C.
Rouch, William White & Co., chemical glass apparatus manufacturers, 180, Strand, and 43, Norfolk-street, Strand, London, W.C.
Round, Edwin & Son, Limited, electro-platers (Thomas Henry Blake, sec.), Holly-street, Sheffield.
ROUND, B. J., electro-gilder & plater, 9, Northampton-street, Birmingham.
Rouse, J., wire worker & weaver, 11, Albert-street, Mansfield.
Rousenberg, Chas., glass shade maker, 48, Brushfield-street, London, E.
Rowatt, A., & Co., electrolier manufacturers and boiler tube brush makers, 25, Candleriggs, Glasgow.
Rowbotham, Samuel, wire worker & weaver, 9, New Broad-street, London, E.C.
Rowbottom, F., cotton driving band maker, Chew Wood Mill, Chisworth, Broadbottom.
Rowbottom, James, rope & twine manufacturer, Muslin-street, Newton-moor, Manchester.
Rowbottom, J., cotton driving band maker, Holehouse Mills, Charlesworth, Broadbottom.
Rowbottom, Samuel, cotton driving band maker, Meadow Mills, Glossop.
Rowe, James E., & Co., oil merchants, 192, High-street, Exeter.
Rowe, John, coppersmith & brazier, 28A, Rhodeswell-road, London, E.
Rowell, D. & Co., telegraph contractor, 2, Poet's-corner, Westminster, London, S.W.
Rowers, H., boiler composition maker, 31, Braunstone-gate, Leicester.
Rowland, Chas., grease manufacturer, Railway-arches, Southwark-park-road, London, S.E.
Rowland, Mrs. E., wire manufacturer, 19, St. Anne-street, Chester.
Rowley, Wm., Nelson & Co., opticians, 6, Mount-pleasant, Gray's-inn-road, London, W.C.
Rowley, John, & Son, opticians, 60, Edgware-road, London, W.
Rowley, J. B., earthenware manufacturer, Woodville, Burton-on-Trent.
Rownson, Drew & Co., zinc merchants, 225, Upper Thames-street, London, E.C.
Royal Galvanic Baths, electric specialities, 55, Marylebone-road, London, W.
Royal Microscopical Society, King's College, Strand, London W.C.
Royal Society, Burlington-house, Piccadilly, W.
Royston, J. Son & Co., telegraph wire manufacturers, Lea Bank Wire Mills, Shrogg's-road, Halifax.
Rudd, Thomas, consulting engineer, 1, Woodland-terrace, Higher Tranmere, Birkenhead.
Ruels & Co., chemical glass and apparatus manufcrs., 28, Goldhawk-road, Shepherd's-bush, London, W.
Ruffles & Butcher, steam packing makers, 6, Wormwood-street, London, E.C.
Runcorn Smelting Company, Gas-street, Runcorn.
Runcorn Soap and Alkali Co., Limited, Runcorn.
Rundell, Son, & Co. engine and boiler fittings manufacturers, 53-57, High-street, Poplar, London, E.
Rustless and General Iron Company, mechanical engineers, 97, Cannon-street, London, E.C.
RUSTON, PROCTOR & CO., MAKERS OF HIGH-SPEED ENGINES, STEAM ENGINES, BOILERS, &c., MECHANICAL AND TELEGRAPH ENGINEERS OF RAILWAY COMPANIES, SHEAF IRON WORKS, LINCOLN.
Russell Bros., tube makers, 110, Cannon-street, London, E.C.
Russell Bros., tube manufacturers, Bradford Tube Works, Walsall.
Russell & Co., electro-gilders and platers, 47½, Great Hampton-street, Birmingham.
Russell, C. & Co., mechanical engineers, 63, Great Tower-street, London, E.C.
Russell, Edward, & Co., india rubber manufacturers, 34A, High Holborn, London, W.C.
Russell, Henry & Co., india rubber manufacturers, 19, Waterloo-road, London, S.E.

Digitized by Google

Russell, John & Co., valve manufacturers, 145, Queen Victoria-street, London, E.C.
Russell, James, & Sons, tube manufacturers, Crown Tube Works, Wednesbury.
Russell & Son, wire drawers, 73, Stibbington-street, Oakley-square, St. Pancras, London, N.W.
Russell, Benjamin, mechanical engineer, 237, Walworth-road, London, S.E.
Russell, Edward, electro-gilder and plater, 46, Northampton-street, Birmingham.
Russell, S., german silver founders, 29, Birmingham-street, Walsall.
Russell, T., file manufacturer, Bernard-lane, Park, Sheffield.
Routledge, R., electro-plate manufacturer and dealer, 53, Buckingham-street, Birmingham.
Ryland Bros., Limited, galvanizers & galvanized iron wire manufacturers 116, Church-st., Warrington.
Ryland (Howard) & Co., tool makers, 40, St. Paul's-square, Birmingham.
Ryland, J., electro-gilder and plater, 30, Harford-street, Birmingham.
Ryland, John, electro-gilder & plater, 166, Great Hampton-row, Birmingham.
Rylands Brothers, Limited, railway signal manufacturers, 116, Church-street, Warrington.

S.

Sabatier, J., & Co., screw makers, 9, Bread-street-hill, London, E.C.
Sabel, Max, parchment maker, 2, Coleman-street-buildings, London, E.C.
Sabine, R., electrician, Grosmont-house, Hampton-wick, Middlesex.
Sach, H., telegraph engineer, Great Eastern Railway Company, Liverpool-street, London, E.C.
Sachs, John, wood engraver, New Courts-chambers, 58, Chancery-lane, London, E.C.
Sacrè, A. L., mechanical engineer, 60, Queen Victoria-street, London, E.C.
Sadler, John, hinge maker, 19, Gracechurch-street, London, E.C.
Sadler, Matthew, tube brush manufacturer, 240, Long-lane, London, S.E.
Sadler, Thos., tube brush manufacturer, 6, Union-road, Newington-causeway, London, S.E.
Sadler, Michael, electrical, magnetic and galvanic apparatus manufacturer, 19, Aston-street, B'ham.
Sadler, Samuel A., sulphate of ammonia, manufacturer, 85, Gracechurch-street, London, E.C.
Sadler, S. A., manufacturing chemist, Cleveland Chemical Works, Middlesborough.
Sagar, J., & Co., shafting manufacturers, Bowling-green Ironworks, Halifax.
Safety Oil Co., Limited, 17, College-hill, London, E.C.
Sage, Frederick, telegraph instrument case maker, 80, Gray's-inn-road, London, W.C. Boxes in all woods by improved machinery.
Sage, Fredk., electric bell fitters, 7, Burross-street, Commercial-road East, London, E.
Saidler, James, coppersmith, 82, New Elvet, Durham.
St. Helen's Copper Co., Limited (Vivian, Younger and Bond, agents), 3, Exchange-chambers, New-street, Birmingham.
St. Helen's Lead Smelting Co., St. Helen's.
St. Rollox Chemical Works, 229, Castle-street, Glasgow.
Salaman, Frederick, electro-gilder and plater, 48, Warstone-lane, Birmingham.
Salmon, James, steam engine maker, 12, Parsonage, Manchester.
Salmon, John, optician, 24, Seymour-street, London, N.W.
Sambridge, W. H., gas fittings manufacturer, 41 and 42, Lombard-street, Birmingham.
Sampson, Low, Marston, Searle and Rivington, electrical publications, Crown-buildings, 188, Fleet-street, London, E.C.
Samuda Bros., mechanical engineers, Isle of Dogs, Poplar, E.
Samuelson, M., C.E., consulting engineer, Yorkshire-buildings, Lowgate, Hull.
Sandars, A., & Co., electro-gilders and platers, 242, Oxford-street, London, W.
Sander, Franz, oil merchant, 32, Lawrence-lane, Cheapside, London, E.C.
Sanders, H. G., & Son, tube makers, Victoria-gardens, Ladbroke-road, London, W.
Sanders, J., boiler manufacturer, 16, Wickham-street, Monkwearmouth.
Sanderson Bros., & Co., Limited, steel wire manufacturers, 19, Walbrook, London, E.C.
Sanderson & Co., lightning conductor and electric bell manufacturers, Leadenhall-house, 101, Leadenhall-street, London, E.C.
Sanderson, H. J., mechanical engineer, 61, Mark-lane, London, E.C.
Sanderson, James, brass founder, Phœnix Works, St. Mary's-road, Sheffield.
Sandison, Wm., jun., mechanical engineer, 6, Maiden-lane, London, W.C.
Sandycroft Foundry and Engine Works, Co., mechanical engineers, 6, Queen-street-place, London, E.C.
Sansom, J., & Co., patent grease manufacturers, 104, Port Dundas-road, Glasgow.
Sansom, R. B., mechanical engineer, 87, Globe-road, London, E.
Sansum, D. H., electro tinner, Eagle Works, Tenby-street, Birmingham.
Sarney, T. S., & Alprovidge, J. M., electrical instrument makers, 6, York-street, St. James'-square, London, S.W.
Sarsons, Henry & Sons, flint glass manufacturers, Chester-street, Dartmouth-street, Birmingham.

Digitized by Google

Saunders, J. B., & Co., telegraph engineers, Cardiff-street, Teignmouth.
SAUNDERS, W. & J., electro-platers, 3, Augusta-street, Birmingham.
Saunders, A., electro-plate manufacturer and dealer, 10, Ludgate-hill, London, E.C.
Saunders, H. C., submarine telegraph engineer, 66, Old Broad-street, London, E.C.
Saunders, J. B,. telegraph engineer, The Laurels, Taunton.
Savary, Young, & Co., chemical merchants, 39, Lombard-street, London, E.C.
Saverio, F., modeller, 53, Watergate-street, Chester.
Saville, H., & Son, electro-gilders and platers, 38, Tarleton-street, Liverpool.
Saville-street Foundry & Engineering Co., Limited, Saville-street East, Sheffield.
Savory & Moore, analytical chemists, 143, New Bond-street, London, W.
Sawers, Wm. Anderson, wood engraver, 49, Essex-street, Strand, London, W.C.
Sawyer, F. H., mechanical engineer, 4, Cullum-street, London, E.C.
SAX, JULIUS, electric telegraph engineer, electric bells, alarms, telephones, &c., &c., 108, Great Russell-street, London, W.C.; works, Morwell-street, Bedford-square, W.C.
Saxby & Farmer, railway signal manfs. (block system, &c.), Canterbury-road, Kilburn, London, N.W.
Schaffer & Budenberg, steam engine indicator, vacuum and hydraulic gauge makers, 202, Hope-street, Glasgow.
Schelman & Son, cotton waste manufacturers, Sheppy-yard, Minories, London, E.
Schleicher, Otto, oil refiner, Warton-road, Stratford, London, E.
Schlesinger, A., & Co., electrolier lamp and lustre manufacturers, 8, Coleman-street, London, E.C.
Schmidt & Jaedicke, electrolier lamp and lustre manufacturers, 210, Gresham-house, London, E.C.
Schœnfeld, J., india rubber manufacturer, 21, Jewin-crescent, Aldersgate-street, London, E.C.
Schœtensack, Herman, oil merchant, 102 and 103, Ethelburga-house, Bishopsgate-street Within, London, E.C.
Schofield, White, & Co., sulphuric acid manufacturers, 4, New London-street, London, E.C.
Scholl, J., mechanical engineer, 41 and 42, Berwick-street, Oxford-street, London, W.
Schölzig, O., glass globe maker, opal globes, flint cased with opal, ground flint, &c., 9, New Broad-street, London, E.C.
Schönheyder, W., mechanical engineer, 3, Flora-terrace, Albion-road, Stoke Newington, London, N.
School of Submarine Telegraphy, Telephony and Electric Light, 12, Princes-street, Hanover-square, London, W.
SCHOOL OF TELEGRAPHY AND ELECTRICAL ENGINEERING, 12, Princes-street, Hanover-square, London, W.
SCHOTH, G. A., electrical instrument maker, 232, Euston-road, London, N.W.
Schreiber, Fredk. Wm., tinfoil manufacturer, 5, Bond-court, Wallbrook, London, E.C.
Schulte, Chas. (agent), steel wire manufacturer, Exchange-buildings, Stephenson-place, Birmingham.
Schwann & Co., copper merchants, 6, Moorgate-street, London, E.C.
Schwarte & Co., wire drawers, 2, Lime-street-square, and Fenchurch-avenue, London, E.C.
Schweitzer & Lawrie, electric specialities makers, 130, Queen Victoria-street, London, E.C.
SCHULTE, CHAS. (agent), iron wire manufacturer, Exchange-buildings, Stephenson-place, Birmingham; manufacturers of wire rods, telegraph and rope wires.
Science Co-operative Supply, chemical, glass and apparatus manufacturers, 22, Charlotte-street, Fitzroy-square, London, W.
Sclanders & Paton, zinc manufacturers, 59N, Frederick-street, Glasgow.
Scott Bros., metal merchants, Royal Insurance-buildings, Queen-street, Newcastle.
Scott Bros., wire rope manufacturers, 20, Crookston-street, Glasgow.
Scott, Robert, optician, 128, Sauchiehall-street, Glasgow.
Scott Bros., telegraph wire manufacturers, Nutsford Vale Works, West Gorton, Manchester.
Scott Bros., copper merchants, Queen-street, Newcastle-on-Tyne.
Scott, F. E. B., & Son, zinc merchants, 21, Strand-street, Liverpool.
Scott, G., & Son, engineers, 44, Christian-street, Commercial-road, London, E.
Scott, W., & Maxwell, lamp post mnnufacturers, Tranmere Foundry, Birkenhead.
Scott, W. T., & Co., acid manufacturers, Marsh-gate-lane, Stratford, London, E.
Scott, Andrew, wood engraver, 152, Fleet-street, London, E.C.
Scott, F. W., wire drawer, 63, Bishopsgate-street Within, London, E.C.
Scott, Gilderoy, Wilson & Sons, glass and iron enamellers, 43, Old Compton-street, London, W.
Scott, James Douglas, copper merchant, Exchange-buildings, Lombard-street, Newcastle.
Scott, James George, mathematical instrument maker, 17, Bermondsey-wall, London, S.E.
Scott, R., consulting engineer, The Exchange, Bowlalley-lane, Hull.
Scottish Asbestos Co., Limited, 106, St. Vincent-street, Glasgow.
Scottish Plating Co., 106, Stirling-road, Glasgow.
Scottish Spelter Co., Lower Greenhill, Stirlingshire.
Scottish Telegraph Construction and Maintenance Co., North-area, Royal Exchange, Glasgow.
Scottish Vulcanite Co., Limited, 5, Aldermanbury Postern, London, E.C.
Scouler, John, optician, 64, Buchanan-street, Glasgow.

Digitized by Google

Scragg & Co., electro-plated ware manufacturers, 62, Tenby-street North, Birmingham.
Scrivener, Gill & Co., magnetic curative appliance manufacturers, 221, Regent-street, London, W.
Scriven & Co., machine tool makers, Leeds.
Scroop, S., & Sons, electric bell fitters, St. Mark's-street, Nottingham.
Seaborn, Geo. Thos., jun., melter, Marshgate-lane, Stratford, London, E.
Seaker, J. & E. B., electric bell manufacturers, 26, Duke-street, Westminster-bridge-road, London, S.E.
Search, C., & Co., mechanical engineers, 17, King William-street, Strand, London, W.C.
Seaward & Co., mechanical engineers, Millwall, Poplar, London, E.
Seddon, J. & T., grease manufacturers, York-street, Sulcoates, Hull.
Selfe, D., electric bell manufacturer, 23, Bedford-street, Leamington.
Selig, Sonnenthal, & Co., makers of driving-bands, emery-wheels and machinery, machine-strap fasteners, pulleys, screw-terminal and small detached accessories, speed indicators, wire covering machines, machines and tools, 85, Queen Victoria-street, London, E.C.
SELINGER, M., reflector and shade manufacturer, 23, Charles-street, Hatton-garden, London, E.C.
Selkirk, Nichol, electric bell fitter, 10, Minerva-street, Glasgow.
Sellars, J. C., chemical manufacturer, 4, Ferry-buildings, Chester-street, Birkenhead.
Sellars, A., wire drawer, West-house, Wyke, Bradford.
Sénécal, L., electro-gilder and plater, 261, Brompton-road, London, S.W.
Senior, George, steel manufacturer, Station-road; Pond-forge, 31, Shude-lane, Pond-street; and Sheaf-street, Sheffield.
Sennett, A. R., arc and incandescent electric lamp manufacturer, Worthing, Sussex.
Seton, Jas., & Co., wire-rope manufacturers, 99, W. Nile-street, Glasgow.
Seville Sulphur & Copper Co., Ld., 149, West George-street, Glasgow.
Sevin, Chas., oil refiner, Morris-road, Crisp-street, Limehouse Cut, London, E.
Sewell, J., & Charles J., electro-plate manufacturers and dealers, 49, Fore-street, London, E.C.
Sewill, F., compass maker, 126, Broomielaw, Glasgow.
Sexton, J., electric bell fitter, Saltergate, Chesterfield.
Seymour, Geo., electric bell fitter, 28, Gt. Crown-court, Little Pulteney-street, London, W.
Shakespeare & Son, guage and draw-plate makers, 54A, Park-road, Aston-park, Birmingham.
Shakespeare, J., mining engineers, Hill Top, West Bromwich.
Shand, Mason & Co., iron tank manufacturers, 75, Upper Ground-street, London, S.E.
SHANKS, ALEXANDER, & SON, steam engine manufacturers, 27, Leadenhall-street, London, E.C.
Share, William, oil merchant, 113A, Constitution-hill, Birmingham.
Sharer, T., boiler composition maker, &c., 17, Gracechurch-street, London, E.C.
Sharland & Co., reflector and shade manufacturers, 69, Fleet-street, London, E.C.
Sharman Bros., model makers, 6, Free-school-lane, Leicester.
Sharman, David, wire worker and weaver, 14A, Napier-street, Shepherdess-walk, London, N.
Sharon Chemical Co., manufacturing chemists, Little Chester, Derby.
Sharp, Alfred, melter, Edward-street East, Deptford, London, S.E.
Sharp, Hy., glass blower, 59, Paul-street, Finsbury, London, E.C.
Sharpe Bros., & Co., earthenware manufacturers, Swadlincote, Burton-on-Trent.
Sharpe & Plimley, metal merchants, 27, Queen-street, Wolverhampton.
SHARPLES, CHAS. H., F.C.S., A.S.T.E., and E., electrical consulting engineer, 7, Fishergate, Preston.
SHARPLES, G. electric clock, and electric syncronization, 7, Fishergate, Preston.
Sharrow & Anderson, electrotypers, 5, West-street, Seven-dials, London, W.C.
Shaw, H., & Son, magnet makers, 45 and 47, Monmouth-street, Sheffield.
Shaw, J., & Sons, wire drawers, Bradford-road, Brighouse.
Shaw, Matthew, T., & Co., iron founders, 148, Cannon-street, London, E.C.
Shaw, M. T., &. Co., iron tank manufacturers, 141, Cannon-street, London, E.C.
Shaw, A., earthenware manufacturer, Mersey Works, Burslem, Stafford.
Shaw, George, patent agent, 37, Temple-street, Birmingham.
Shaw, G., ironfounder, 65, Station-street, Swinton, Rotherham.
Shaw, George, lead merchant, 20, King Edward-street, Newgate-street, London, E.C.
Shaw, James, file manufacturer, Dauntless-works, Morpeth-street, Sheffield.
Shaw, J., lead merchant, 59, Park-street, Glasgow.
Shaw, John, wire manufacturer, Yorkshire iron and wire works, Soho-street, Ecclesall-road, Sheffield.
Shaw, Thomas, refiner, 105, Aston-road, Birmingham.
Shaw, Walter, iron and brass founder, stove, grate and Leamington range warehouse, 16 and 17, Park-street. Works, Aston, Birmingham.
Shaw, W. C., chronometer maker, 56, Gordon-street, Glasgow.
Shaw's Brow Iron Company, wire drawers, 93, Upper Thames-street, London, E.C.
Shea, John, chemical glass and apparatus manufacturer, 184, Cator-street, Peckham, London, S.E.
Shears, James & Sons, brass and copper founders, 27, Bankside, London, S.E.
SHEATH BROTHERS, india-rubber manufacturers and dealers, 89, City-road, London, E.C.
Sheriff, J., electro-gilder and plater, 27, Gloucester-street, Clerkenwell, London, E.C.

Digitized by Google

Sheepbridge Coal and Iron Co., Limited, (John William Tankard, Manager), iron manufacturers, Norwood, Kilmarsh, and at Sheepbridge, Chesterfield.
Sheffield Chemical Co., manufacturing chemists, Don Vitrol Works, Washford-road, Attercliffe, Sheffield.
Sheffield Patent Office, (Robert F. Drury, Agent), 24, George-street, Sheffield.
Sheffield Steel & Manufacturing Co., Ld. (Joseph Peace, Manager and Secretary), file manufacturers, Lancaster-street, Neepsend, Sheffield.
Sheffield Steel & Wire Co., steel tilters, rollers and forgers, Midland-works, Brightside-lane, Sheffield.
Sheffield Trade Mark Protection Society, (J. S. Bartlett, Agent), 85, Queen-street, Sheffield.
Sheldon, Bush & Co., lead pipe manufacturers, Cheese Lead-works, Crew-hole, Bristol.
Sheldon, W. H., rolling-mills and rolled metal manufacturers, 26 and 27, Augusta-street, Birmingham.
Shelton, A., wire-drawer, Stanley-street Wire-mill, Sheffield.
Shepherd, Hill & Co., machine tool makers, Leeds.
Shepherd, Benjamin, iron merchant, 14, Dixon-lane, Sheffield.
Sheppard & Co., manufacturers of electro-plate and Britannia metal wares, 28, Mary-street, Birmingham.
Sherwood & Son, electro-platers and gilders, Regent-works, Vittoria-street, Birmingham.
Shevyn, H., zinc worker, 3, Short-street, Walsall.
Shields, Mrs. Susannah, wire worker and weaver, 21 and 22, Clarendon-street, Tabard-street, Borough, London, S.E.
Shipman, Jabez, & Co., wire manufacturers, 128, Carlton-road, Attercliffe, Sheffield.
SHIPPEY BROTHERS & CO., electric light contractors, 13 and 14, King-street, Cheapside, London, E.C.
Shirlaw, A., & Co., engineers, 39, Upper Thames-street, London, E.C.
Shölzig, O., brass and copper tube maker, 9, New Broad-street, London, E.C.
Shorey, Clark & Co., engineers, 5, Pennyfields, Poplar, London, E.
Short and Mason, mathmetical instrument makers, 40, Hatton-garden, London, E.C.
Short, Joseph, oil merchant, 220, Great Lister-street, Birmingham.
Short, John, mathmetical instrument maker, 2, Gladstone-street, London-road, London, S.E.
Short, Thos., iron founder, Bridge-foundry and Lionel-street, Birmingham.
Shorthouse, B. & G., wire drawers, Eyre-street, Spring-hill, Birmingham.
Shorthouse, Joseph, & Sons, manufacturing chemists, 65, Shadwell-street, Birmingham.
Shott's Iron Company, lamp post manufacturers, 37, West Nile-street, Glasgow.
Showell, Edwin, & Sons, naval and general brass founders, Lower Loveday-street Works, Birmingham.
SHROPSHIRE IRON COMPANY, LIMITED, telegraph wire manufacturers, 158, Leadenhall-st., London, E.C.
Shufflebotham, Enoch, & Co., manufacturing chemists, Icknield Port-road, Birmingham.
Shurlock, Chas., & Son, air-tight glass case makers, 34, Grange-street, Hoxton, London, N.
Shute, Thos., mechanical engineer, 10, Cannon-street-road, St. George's, East, London, E.
Shuttleworth, J. A. H., lead smelter, Hathersage, Sheffield.
Sibson, Alfred, F.C.S., analytical chemist, 23, St. Mary-axe, London, E.C.
Sidebottom, George, cotton driving band manufacturer, Gee-cross, Manchester.
SIEMENS BROS. & CO., LIMITED, electricians (J. S. Raworth, agent), 6, St. Mary's-gate, M'chester.
Siemens Bros., & Co., Limited, electric light engineers and contractors, 12, Queen Anne's-gate, Westminster, S.W.
Siemens, Dr. C. W., electrician, 12, Queen Anne's gate, Westminster, S.W.
Signal Engineering Co., electric bell manufacturers, 181, High Holborn, London, W.C.
Sigrist, Richard, electrolier lamp and lustre manufacturer, 37, Justin-street, Old Kent-road, London, S.E.
Silber Light Co., electrolier lamp and lustre manufacturers, 49, Lower Whitecross-street, London, E.C.
SILK, OWEN J., wire worker and weaver, 41, Auckland-road, Camp-hill, Birmingham. Agent for R. Loveday & Sons' patent spring horse collar.
Silkstone Brick Co., stoneware drain pipe manufacturers, Finchley-road Station, Midland Railway, London, N.W.
Silverlock, H., electrotyper, 92, Blackfriars-road, London, S.E.
Silvester, H. S., draughtsman, 9, Adam-street, London, W.C.
Simey, C. R., copper merchant, 55, Fawcett-street, Sunderland.
Simkiss, R., electro-gilder and plater, 10, Kenion-street, Birmingham.
Sim, Leckie & Co., wire rope manufacturers, 55, Bath-street, Glasgow.
Simmonds, F. H., brass and copper founder, 21, New Charles-street, Goswell-road, London, E.C.
Simmons Bros., opticians, 26, Finsbury-pavement, London, E.C.
Simmons, C. J., electrical testing instrument manufacturer, 56, Leverton-street, Leighton-road, Kentish Town-road, London, N.W. For land and marine service, galvanometers, resistance coils, condensers, keys, switches, etc.
Simmons, Frederick, mechanical engineer, 24, Garden-row, London-road, London, S.E.
Simon, A., & Co., glass shade makers, 42, Hatton-garden, London, E.C.
Simon, L., gas engine maker ("Eclipse"), Nottingham.
Simpson & Co., lighthouse engineers, 101, Grosvenor-road, Pimlico, London, S.W.

Digitized by Google

Simpson, C., & Sons, copper merchants, 16, Park-row, Leeds.
Simpson, Hall, Miller & Co., (Hund Bros.), electro-plate manufacturers and dealers, 81, Queen Victoria-street, London, E.C.
Simpson, John H., & Co., lead merchants, 52, London-road, London, S.E.
Simpson, Jas., & Sons, screw makers, 63, Bishopsgate-street Within, London, E.C.
Simpson, T. A., earthenware manufacturer, Swan Works, Elm-street, Hanley, Stafford
Simpson, Wm., & Co., oil merchants, 1, Fenchurch-avenue, Lime-street, London, E.C.
Simpson & Sons, copper merchants, Walker-chambers, Humber-street, Hull.
Simpson & Wood, bolt and nut manufacturers, 11, Hart-street, Mark-lane, London, E.C.
Simpson, C. H., electro-gilder and plater, 13, Windsor-street, Brighton.
Simpson, W., manufacturing chemist, 21, West Nile-street, Glasgow.
Sinclair, Geo., valve manufacturer, Albion Boiler Works, Leith.
Sinclair, J., wire drawer, 1A, Shrub-place, Leith-walk, Edinburgh.
Singleton, Joseph, & Co., manufacturing chemists, Eyre-street, Birmingham.
Sinsey, C. R., telegraph engineer, 55, Fawcett-street, Sunderland.
Steel, E., earthenware manufacturer, Cannon-street Works, Hanley, Stafford.
Skern Iron Works Co., mechanical engineers, 86, Cannon-street, London, E.C.
Skey, G., & Co., Limited, manganese merchants, Albion-wharf, Horseley-fields, Wolverhampton.
Skey, Geo., & Co., stoneware drain pipe manufacturers, 42, Berners-street, London, S.W.
Skey, G., manganese merchant, Wilnecote-house, Wilnecote, Warwickshire.
Skidmore, H., iron tube manufacturer, Netherton, Dudley.
Skidmore, H. P., tube maker, 19, Gracechurch-street, London, E.C.
Skidmore, J., mining engineer, Dennis-park, Amblecoate, Stourbridge.
Skinner & Walker, earthenware manufacturers, Stafford Pottery, South Stockton, Stockton-on-Tees.
Skirrow & Mortlock, spelter manufacturers, 198, Upper Thames-street, London, E.C.
Skitt, John, & Co., oil merchants, 93, Sumner-street, Southwark, London, S.E.
Skudder, Geo., & Co., asbestos merchants, Thornburn-square, Bermondsey, S.E.
Slack's Emery Wheel & Machine Co., Limited, Lime-bank-street, Ashton Old-rd., Ardwick, Manchester.
Slape, Harraway, optician, 61, High-street, Camden Town, London, E.C.
Slater, James, & Co., steam engine makers, 251, High Holborn, London, W.C.
Slater, B., hinge maker, 68, Charles-street, City-road, London, E.C.
Slater, Henry, hinge maker, 34, Meredith-street, St. John's-street-road, Clerkenwell, London, E.C.
Slater, Lewis T., telegraph insulator manufacturer, 28, Hamilton-street, Birkenhead.
Sloper, William, mathematical instrument maker, 30, Lambeth-road, London, S.E.
Small, William, wire worker and weaver, 68½, Moseley-street, Birmingham.
Smallman, J., mining engineer, Essington, Wolverhampton.
Smallman, R., mining engineer, Camp Hill Grange, Nuneaton.
Smart, Arthur, & Co., cotton waste merchants, 70 and 71, Bishopsgate-street Within, London, E.C.
Smart & Wyatt, electric bell fitters, 7, Drury-court, Strand, London, W.C.
Smart, F., air-tight glass-case manufacturer, 91, Newhall-street, Birmingham.
Smillie, Samuel, coppersmith, 10, Havelock-street, Finnieston, Glasgow.
Smith, Baxter & Gelpcke (Anglo-American Patent Vulcanite Company, Limited), Brettenham-road, Edmonton. Patent insulated wire and cables for telegraphic, telephonic, submarine, and illuminating purposes.
SMITH & BAKER, brass founders, 108, Aston-road, Birmingham.
Smith, Beacock & Tannett, machine tool makers, 1, Westminster-chambers, London, S.W.
Smith Bros., lamp post manufacturers, Abbey-street, Derby.
Smith Bros. & Co., brass and copper founders, 31, Spital-square, Bishopsgate-st. Without, London, E.
Smith Bros. & Co., grease manufacturers, Marshgate-lane, Stratford, London, E.
Smith Bros. & Co., brass casters, Hyson Green Works, Hyson Green, Nottingham.
Smith & Chamberlain, makers of dynamo and electrical instruments for inventors and the trade, 3, New Bartholomew-street, Birmingham.
Smith, Charles, & Son, glass globe makers, 63, Charing-cross, London, S.W.
Smith, Charles, & Sons, electric bell fitters, 43, Temple-street, Birmingham.
Smith & Cook, electro-platers and gilders, 26, Lionel-street, Birmingham.
Smith & Co., parchment makers and dealers, 4, Wine Office-court, London, E.C.
SMITH & COVENTRY, draughtsmen and tool manufacturers, Gresley Ironworks, Ordsall-lane, Manchester.
Smith, Dooley & Co., earthenware manufacturers, Rowton Potteries, Woodville, Burton-on-Trent.
Smith, E., & Co., iron founders, Wednesbury, Birmingham.
Smith, Frederick, & Co., telegraphic wire manufacturers, Caledonia Works, Halifax. Patent galvanized high conductivity telegraph wire to all specifications.
Smith, Frederick & Co., brass and copper wire manufacturers, 10 and 11, Aldermanbury, London, E.C.
Smith, G. B., & Co., screw makers, 33, Cornhill, London, E.C.
Smith, G. B. & Co., galvanizers, 61, West Regent-street, Glasgow.

Digitized by Google

Smith, George, & Co., iron founders, Imperial-chambers B, Colemore-row, Birmingham.
Smith, G., & Co., lamp post manufacturers, Sun Foundry, Glasgow.
Smith, G., & Co., copper merchants, 10, Carrick-street, Glasgow.
Smith, George, & Son, lightning-conductor manufacturers, 59, Martin-street, Bermondsey, London, S.E.
Smith, G. & A., crucible makers, Bilbao-street, Glasgow.
Smith, Horace & Co., oil refiners, 178, Liverpool-road, London, N.
Smith, Henry Samuel, & Co., chemical merchants, 8, Cullum-street, London, E.C.
Smith, J., & Co., gutta percha manufacturers and dealers, 87, Blackman street, Borough, London, S.E.
Smith, John, & Sons, brass manufacturers, 18, St. John's-square, London, E.C.
Smith & Matthews, coppersmiths and braziers, 3, Little Compton-street, Soho, London, W.
Smith & McLean, galvanizers and galvanized iron wire manufacturers, Gartcosh Rolling Mills, Coatbridge, Lanarkshire.
Smith, Robert, & Co., wire manufacturers, 74, Eyre-st., Sheffield.
Smith, S., & Son, electro-plate manufacturers and dealers, 35, King-st., Covent-garden, London, W.C.
Smith, A., & Stevens, mechanical engineers, 48, Leicester-square, London, W.C.
Smith & Stoker, mechanical engineers, 7A, Laurence Pountney-hill, London, E.C.
Smith & Turner, brass manufacturers, 50, Bartholomew-close, London, E.C.
Smith, T., & Co., electro gilders and platers, 10, Percival-street, Clerkenwell, London, E.C.
Smith, Thomas, & Co., chemical glass and apparatus manufacturers, Verney-road, Old Kent-road, London, S.E.
Smith, T., & Son, electro-gilders and platers, 25, Queen-street, Glasgow.
Smith, W., & Co., wire drawers, Dallam Wire Works, Warrington.
Smith, William, & Co., wire manufacturers, 49, Bailey-street, Sheffield; and Mill House Works, Penistone, Sheffield.
Smith & Wilshaw, machine tool makers, Hope-street, Gibbet-street, Halifax.
Smith, W. & F., gilders, 72, Northwood-street, Birmingham.
Smith, Alexander, gutta percha merchant, 20, Dixon-street, Glasgow.
Smith, A., M.A., teacher of mathematics, 34, Abbotsford-place, Glasgow.
Smith, B. G., lead pipe manufacturer, Hope-street, Halifax.
Smith, C. W., electro-gilder and plater, 29, Wellington-quay, Dublin.
Smith, E., tube manufacturer, Brunswick Tube Works, Wednesbury.
Smith, Frederick, mathematical instrument maker, 91, Brunswick-street, Hackney-road, London, E.
Smith, Frederick, rolling mills and rolled metal manufacturer, Waterloo Metal Works, St. Mary's-square, Birmingham.
Smith, George, bolt and nut manufacturers, New Spring-street, Birmingham.
Smith, G. E., telegraph engineer, 210, North Sherwood-street, Nottingham.
SMITH, GUY, A.M., T.C.E., agent for Maclea and March, Sanderson Bros. & Co., W. Furness & Co., and Trowell Iron Company, 19, Walbrook, London, E.C.
Smith, George, charcoal maker and dealer, 24, Cavendish-street, New North-road, London, N.
Smith, George, M.D., manufacturing chemist, 112, Renfield-street, Glasgow.
Smith, Isaac, mathematical instrument maker, 22, Newton-street, Birmingham.
Smith, J., brass finisher, Traffic-street, Derby.
Smith, John Henry, general engraver, 21½, Carver-lane, Sheffield.
Smith, J. W., electro-gilder and plater, 51, Percival-street, Clerkenwell, London, E.C.
Smith, M. A. W., galvanizer, 20, Moor-street, Birmingham.
SMITH, MRS. S. C. W., brazier, 13, Seymour-street, Birmingham.
Smith, Richard, manufacturing chemist, 114, West-street South, Glasgow.
Smith, Samuel, iron founder, Rolfe-street, Smethwick, Birmingham.
Smith, Silvanus, rivet manufacturer, High Park-road, Smethwick, Birmingham.
SMITH, SPENCER, mechanical engineer, 11, West-street, and 30, Litchfield-street, London, W.C.
Smith, Spencer, composition maker, &c., 204, High Holborn, London, W.C.
Smith, T., enameller (glass or iron), 61, Frith-street, Soho, London, W.
Smith, Thomas, coppersmith and brazier, 59, White Horse-street, Commercial-road East, London, E.
Smitn, W., railway signal manufacturer, Castlefield, Manchester.
Smith, W., electro gilder and plater, 63½, Great Hampton-street, Birmingham.
Smith, W., copper merchant, 39, Close, Newcastle-on-Tyne.
Smith, W., consulting engineer, 22, Grey-street, Newcastle.
Smith, W., lighthouse engineer, 60, Sandhill, Newcastle.
Smith, W., chronometer maker, 13, Sauchiehall-street, Glasow.
Smith, William, steel manufacturer, Hallamshire Steel and File Works, Neepsend, Sheffield.
Smetham, Alfred, analytical chemist, 18, Brunswick-street, Liverpool.
Smithers, Frederick Oldershaw, manganese merchant, St. Bene't-chambers, Fenchurch-st., London, E.C.
Smithers, William Flower, oil merchant, 30, Mark-lane, London, E.C.
Smuthwaite, Armstrong & Co., mechanical engineers, Gun-lane, Limehouse, London, E.
Snell & Priedeaux, electro gilders and platers (nickel), Ernest-street, Holloway Head, Birmingham.

Digitized by Google

Snowball & Co., shafting manufacturers, Crown Bridges Side, Newcastle-on-Tyne.
Soane & Smith, electrolier lamp and lustre manufacturers, 462, Oxford-street, London, W.
Société des Lunetiers, opticians, 56, Hatton-garden, London, E.C.
Society of Arts (Learned and Scientific), 18, John-street, Adelphi, London, W.C.
SOCIETY OF TELEGRAPH ENGINEERS, AND OF ELECTRICIANS, 4, The Sanctuary, Westminster, London, S.W. F. H. WEBB, Secretary.
Solomon, Mark, optician, 76, Theobald's-road, London, W.C.
Somalvico, J., & Co., opticians, 16, Charles-street, Hatton-garden, London, E.C.
Somerville, C., india rubber manufacturer, 34A, Belvior-street, Leicester.
Sommerville & Smith, air-tight glass case makers, 34, Eagle-street, Red Lion-street, London, W.C.
Sopwith, T., & Co., lead manufacturers, 6, Great George's-street, London, S.W.
Sorel, Frères, oil merchants, 6, St. Martin's-lane, London, E.C.
Sothern, S., lightning conductor manufacturer, 25, Henblas-street, Wrexham, North Wales.
Soutar Brothers, & Co., steam engine boiler makers, Maria-street, Millwall, London, E.
Souter, Wm., & Co., rivet makers, Preston and Albany-streets, Glasgow.
South African (Brush) Electric Light and Power Co., Limited, electric light contractors, 5, Copthall-buildings, London, E.C.
South Down Metal and Chemical Co., Limited, manufacturing and metallurgical chemists, 8, Old Jewry, London, E.C.
SOUTH-EASTERN (BRUSH) ELECTRIC LIGHT AND POWER CO., LIMITED (*G. Offor, Manager*), Electric Light Companies, 110, Cannon-street, London, E.C.
South Kensington China, Glass, and Lamp Co., electrolier lamp and lustre manufacturers, 4, Colehorne-terrace, Richmond-road, London, S.W.
South London Boiler Works, steam engine boiler makers, Long-lane, Bermondsey, London, S.E.
South London Central Public Laboratory, analytical chemists, 161, Lower Kennington-lane, London, S.E.
South Roskear Tin and Copper Mining Co., copper and tin manufacturers, Camborne, Cornwall.
South Wales Lead Smelting and Colliery Co., Limited, lead smelters, Penclawdd, Swansea.
Southward, Charles, glass shade maker, 10, White-street, Houndsditch, London, E.
Southwark Lead and Glass Co., lead merchants, Rose-alley Warehouses, Park-street, Borough, London, S.E.
Soutter, Andrew G., & Co., lead merchants, 9, Bury-street, St. Mary-axe, London, E.C.
Soward, Alfred Walter, analytical chemist, 5, Serjeants'-inn, London, E.C.
Sowerby & Co., glass manufacturers, 10, Broad-street, Birmingham.
Spafford, A., & Co., steel manufacturers, Imperial works, Brown-street, Sheffield.
Sparkes, W., & Son., gas fitters, Church-street, Great Malvern.
Spear and Jackson, steel manufacturers, Etna Works, Saville-street-east, Sheffield.
Spence, John B., & Co., composition makers, &c., 31, Lombard-street, London, E.C.
Spence, Peter, & Co., manufacturing chemists, Cattle's-grove, Nechells, Birmingham.
Spence, James, consulting engineer, Printing-court-buildings, Newcastle.
Spence, William, patent office, 8, Quality-court, Chancery-lane, London, W.C.
Spencer, George, & Co., India rubber manufacturers, 77, Cannon-street, London, E.C.
Spencer, J., & Co., machine tool makers, Atlas Works, Keighley, Yorkshire.
Spencer, J. E., & S., metal manufacturers, 97, Cannon-street, London, E.C.
Spencer, J. R., & Son, wire drawers, Albion Steel Works, Pea Croft, Sheffield.
SPENCER, JAMES E., AND SAMUEL, tube manufacturers, general engineers, and contractors, 3, Queen-street-place, London, E.C.
Spencer, John, & Co., machine tool makers, 86, Queen-street, London, E.C.
Spencer, John, & Sons, steel and file manufacturers, Newburn Steel Works, Newcastle-on-Tyne.
Spencer, Walter, & Co., file manufacturers, Midland Steel Works, Masbro'-street, Masbro', Rotherham.
Spencer, Walter, & Co., steel manufacturers, 158, Leadenhall-street, London, E.C.
Spencer & Watson, chemical merchants, Guildhall-chambers, Newcastle-on-Tyne.
Spencer, Fredk. George, lead merchant, 298, Euston-road, London, N.W.
Spencer, George, mechanical engineer, 77, Cannon-street, London, E.C.
Spencer, John, iron tube maker, Vulcan Tube Works, Spoon-lane, West Bromwich, and 27, Cannon-street, London, E.C.
Spencer, Thomas, analytical chemist, 32, Euston-square, London, N.W.
Spencer, Wm. James, optician, 163, Gray's-inn-road, London, W.C.
Sperrey, W., lead merchant, Via Gillia Lead Works, Bonsall, Derby.
Spies Brothers, & Co., chemical merchants, 63, Great Tower-street, London, E.C.
Spill, George, & Co., india rubber manufacturers, 256, Mile-end-road, London, E.
Spiller, Wm., & Sons, screw makers, 63, Bishopsgate-street-within, London, E.C.
Spiller, George, optician, 3, Wigmore-street, Cavendish-square, London, W.
Spiller, R., electro gilder and plater, 166, Upper-street, Islington, London, N.
Spratt, James, brass caster, 166, Tennant-street, Birmingham.

Digitized by Google

Springall, John, mechanical engineer, High-street, Stratford, London, E.
Springbank Co., manufacturing chemists, 25, Wellington-street, Glasgow.
Spruce, J., mining engineer, The Laurels, Wall Heath, Dudley.
Spruce, S., mining engineer, Albert-road, Tamworth, Staffordshire.
Spruce, W., mining engineer, The Laurels, Wall Heath, Dudley.
Spurrier, Fredk., rolling mill and rolled metal manufacturers, Bournbrook, Selly Oak, Birmingham.
Spurrier, W., Limited, electro plate manufacturers and dealers, Wool Exchange, London, E.C.
Spurrier, Walter, & Co., electro plated ware manufacturers, 1, Hall-street, Birmingham.
Spurrier, Wm., Limited, electro plated ware manufacturers, 81, Colmore-row, Birmingham.
SQUIRE, PETER, & PETER W., analytical chemists, 413, Oxford-street, London, W.
Squires, George, & Son, crucible manufacturers, 127, Pritchett-street, Birmingham.
Squires, T., electro gilder and plater, 79, Lower Rushall-street, Walsall.
Stacey, E. H., electro gilder and plater, 116, Norfolk-street, Sheffield.
Staddon, J. S., optician, Church-street, Ripley, Derby.
Stafford, Henry, rope and twine manufacturer, 35, Town-lane, Dukinfield.
Stafford, T., cotton driving band maker, Toir Top, New Mills, Stockport.
Staffordshire Bolt Company, bolt and nut makers, 128, Hope-street, Glasgow.
Staffordshire Bolt, Nut, and Fencing Company, 3 and 4, Great Winchester-street, London, E.C.
STAFFORDSHIRE WHEEL AND AXLE COMPANY, machine manufacturers, Heath-street South, Spring Hill, Birmingham.
Stagg, Thomas M., file manufacturer, 234, Solly-street, Sheffield.
Stainton, R. J., & Son, mechanical engineers, 134, Bermondsey-street, London, S.E.
Staley, T., mining engineer, Chapel-street, Bedworth, Nuneaton.
Standard Emery Wheel Company, 13, Greek-street, Soho, London, W.
STANDARD (FYFE-MAIN) ELECTRIC LIGHTING COMPANY, 26, Queen Victoria-street, London, E.C.
Standard Lubricating Oil Company, oil merchants, 1, Drapers'-gardens, London, E.C.
Standard Time and Telephone Companies, 19 and 21, Queen Victoria-street, London, E.C.
Staniar, J., & Co., wire weavers, 1, Mary-street, Strangeways, Manchester.
Stanley, Hall & Co., mechanical engineers, 91, Queen Victoria-street, London, E.C.
Stanley, M., metal merchant, Upper Parliament-street, Nottingham.
STANLEY, W. F., mathematical instrument maker, 4, Great Turnstile, Holborn, London, W.C., and 13, Railway-approach, London-bridge, S.E. WORKS: Norwood Junction.
Stannah, Joseph, steam engine maker, 20, Southwark Bridge-road, London, S.E.
Stanton Bros., metal merchants, 73, Shoe-lane, London, E.C.
STANTON IRON WORKS COMPANY, LIMITED, electric lamp posts, Palace-chambers, 9, Bridge-street, Westminster, London., S.W.
Star Iron Company, bolt and nut makers, 68, Mitchell-street, Glasgow.
Stark & Law, zinc merchants, The Grove, Southwark-street, London, S.E.
Starkey, R. W., & Son, parchment makers and dealers, 27, New Bridge-street, London, E.C.
Staines, J. S., & Sons, tube brush manufacturers, 13, Broad-street, Ratcliff, London, E., and 4, New London-street, Fenchurch-street, London, E.C.
Stassen, John, mechanical engineer, 253, Euston-road, London, NW..
Statham, W. E., chemical cabinet and portable laboratory manufacturer and optician, 111, Strand, London, W.C.
Stauffer & Co., iron tank manufacturers, 2, Lugard-road, Peckham, London, S.E.
Staynes & Sons, leather driving bands, 60 and 62, High-street, Leicester.
Steade, Thomas, iron founder, 34, Cemetery-road, Sheffield.
Steel Company of Canada, Limited, steel manufacturers and merchants, 115, St. Vincent-st., Glasgow.
Steel, Tozer & Hampton, Limited, steel manufacturers, Phœnix Bessemer Steel Works, Ickles, Rotherham; and Alliance-chambers, George-street, Sheffield.
Steele, R., mining engineer, 18, Albion-street, Hanley, Staffs.
Steeley, William, electro-plater and gilder, 2, Mary Ann-street, Birmingham.
Steel, J., & Co., driving band manufacturers, 1, High-street, Wolverhampton.
Stephens, J., & Co., felt makers, 2, Frith-street, Soho-square, London, W.
Stephens, Smith & Co., mechanical engineers, 1, Cuba-street, Millwall, London, E.
Stephens, R., electro-gilder and plater, 18, George-yard, Old-street, London, E.C.
Stephenson, C. T., & Sons, Limited, engine makers, Boston, Lincolnshire.
Stephenson & Co., wire drawers, 2, Exchange-street East, Liverpool.
Stephenson, R., & Co., mechanical engineers, 9, Victoria-chambers, London, S.W.
Stephenson Tube Company, tube makers, Liverpool-street, Birmingham.
Stephenson, J. G. L., mechanical engineer, 6, Draper's-gardens, London, E.C.
STERNE, L., & CO., LIMITED, mechanical engineers, gas engine makers (Clerk's Patent), 10, Victoria-chambers, London, S.W.; and at Glasgow.

Digitized by Google

Stevens Bros., & Co., iron founders, 35 & 36, Upper Thames-street, London, E.C.
Stevens & Co., barytes makers, Matlock Dale, Matlock Bath, Derbyshire.
Stevens & Co., oil merchants, 322 and 324, Old-street, St. Luke's, London, E.C.
Stevens, J. J., & Sons, railway signal manufacturers, 470, New City-road, Glasgow.
Stevens, James, & Son, glass manufacturers, Victoria Glass Works, Dartmouth-street, Birmingham.
Stevens, Pellatt, & Co., machine strap makers, 57, Lant-street, London, S.E.
Stevens & Sons, railway signal manufacturers, 237, 243, Southwark Bridge-road, S.E.
Stevens, Edward, galvaniser, Quarry Bank, Brierley-hill, Stafford.
STEVENS, F. A., electric bell & electrical instrument manufacturer, 65, West Smithfield, London, E.C.
Stevenson, Carlisle, & Co., manufacturing chemists, 23, West Nile-street, Glasgow.
Stevenson, D., & T., lighthouse engineers, 84, George-street, Edinburgh.
Stevenson, Wm., & Co., sheet lead and lead pipe manufacturers, 74, 80, Brown-street, Glasgow.
Stevenson, John, wire worker and wire cloth manufacturer, 266, Argyle-street, Glasgow.
Steward, J. H., optician, 406, Strand, London, W.C.
Stewart, A. & C., steam engine indicator, vacuum & hydraulic gauge makers, 19, Victoria-st., Glasgow.
Stewart, A. & J., gas and water pipe manufacturers, 37, Oswald-street, Glasgow.
Stewart, Andrew and James, tube brush manufacturers, 235, Upper Thames-street, London, E.C. Agent, J. Gillespie & Co.
Stewart Bros., & Spencer, oil refiners, 4, Queen Victoria-street, London, E.C.
Stewart, D. Y., & Co., gas pipe makers, 3, Victoria-street, Westminster Abbey, London, S.W.
Stewart, D. Y., & Co., lamp post manufacturers, Charles-street, St. Rollox, Glasgow.
Stewart, David, & Co., crucible makers, 18, Buchanan-street, Glasgow.
Stewart, J., & Son, steam engine boiler makers, Blackwall Iron Works, Isle of Dogs, London, E.
Stewart, C., & Son, galvanisers and galvanised iron wire manufacturers, Pountney-st., Wolverhampton.
Stewart, Jas., & Son, zinc manufacturers, 7, Warwick-street, Glasgow.
Stewart, John, & Co., steel manufacturers and merchants, 28, 30, 32, Oswald-street, Glasgow.
Stewart, T., & J., & Co., wire rope manufacturers, 55 to 57, Anderston Quay, Glasgow.
Stewart, Thos., & Co., steel manufacturers and merchants, 45, Hope-street, Glasgow.
Stewart, C. R., coppersmith, 40, St. Enoch-square, Glasgow.
Stewart, D., coppersmith, 115, Main-street, Bridgeton, Glasgow.
Stewart, J. T., wire rope manufacturer, 102, Bath-street, Glasgow.
Stewart, John, india rubber merchant, 76, Wilson-street, Glasgow.
Stewart, W., consulting engineer, 16, St. Werbergh-street, Chester.
STIEBER, JOHN, BALTH & SON, wire drawers, 5, Godliman-st, Doctor's-commons, London, E.C., manufacturer of High Conducting Copper Wire.
STIFF, JAMES, & SONS, chemical glass and apparatus makers, High-street, Lambeth, London, S.E.
Stillwell & Sons, electro gilders and platers, 76, Spencer-street, Birmingham.
Stinson, R., Yates & Co., electrotypers, 1, McLean-buildings, London, E.C.
Stirling, A., chronometer maker, 39, Steven-street, Glasgow.
Stobwasser, C. H., & Co., electrolier, lamp and lustre manufacturers, 31, Camomile-street, London, E.C.
Stock, Son, & Taylor, lead merchants, Gas-street, Broad-street, Birmingham.
Stocks & Hornor, hinge makers, 190, Westminster-bridge-road, London, S.E.
Stocks, J., electro-plate manufacturer and dealer, Orchard-lane, Sheffield.
Stockton Forge Co., mechanical engineers, 2, Suffolk-lane, London, E.C.
STOKER, GEO. NAYLOR, analytical chemist, The Laboratory, Somerset-house, London, W.C.
Stokes Bros, electric lamp manufacturers (Arc), 14, Finsbury-square, London, E.C.
Stone, Fawdry & Stone, glass manufacturers, Dartmouth-street, Birmingham.
Stone, J., & Co., copper merchants, 29, St. Vincent-place, Glasgow.
Stone, J. & Co., steam engine makers, Deptford, High-street, London, S.E.
Stone, Edward, oil merchant, 46, Fish-street-hill, London, E.C.
Stone, Joseph, mechanical engineer, 42, St. George's-road, Southwark, London, S.E.
Stone, Wm., balance maker, 44, Gloucester-street, Bloomsbury, London, W.C.
Stonier, F., & G. W., & Co., wire drawers, 38A, Shude-hill, Manchester.
Stones Bros., bolt and nut manufacturers, Brook-street, Smethwick, Birmingham.
Stones, John (executors of), file manufacturer, Milton Works, 80, Milton-street, Sheffield.
STOPES & CO., ENGINEERS, GENERAL AGENTS, &c. ELECTRICAL HEAT REGULATORS, AND POWER TRANSMITTERS FOR MALLINGS, BREWERIES, &c., 24, SOUTHWARK-STREET, LONDON, S.E.
Storer, D., & Sons, chemical merchants, 128, Leadenhall-street, London, E.C.
Storer, David & Sons, lead manufacturers, 58 to 84, & 41 to 73, Sydney-street, Glasgow.
Storey, Isaac & Sons, steam engine makers, Knott Mill, Manchester.
Storer, James & Co., grease manufacturers, 66, Queen-street, London, E.C.
Storer, James & Co., lead merchants, 2, King William-street, London, E.C.
Storey, I., & Sons, anti-friction metal merchants, 35, Little Peter-street, Manchester.
Storry, Smithson & Co., grease manufacturers, Princes-chambers, 187, High-street, Sulcoates, Hull.

Digitized by Google

Storry, Witty & Co., black lead manufacturers, 150, Church-street, Wilcolmbe, Hull.
Stothert & Pitt, lighthouse engineers, Newark Foundry, Lower Bristol-road, Bath.
Stott, Lees, & Buckley, bolt and nut manufacturers, Cowhill Iron Works, Oldham.
Stott & Sons, consulting engineers, 4, Corporation-street, Manchester.
Stott, F., wire drawer, Hartshead, Normanton.
Stott, J. F., wire drawer, Buxton-road, Huddersfield.
Strachan, John, optician, 7, Rocliffe-street, Graham-street, City-road, London, N.
Straeten, Edmund Van der, spelter manufacturer, 11, Queen Victoria-street, London, E.C.
Stratford, W. & H., electro-plate manufacturers and dealers, 1, New Church-street, Sheffield.
Streeton, Wm., & Fras., melters, Cobbett's-lane, Rotherhithe, London, S.E.
STRODE & CO., electric light apparatus manufacturers, 48, Osnaburgh-street, London, N.W.
Stroh, A., telegraph engineer, 98, Haverstock-hill, London, N.W.
Strong & Co., glass shade makers and dealers, 36, St. Martin's-lane, London, W.C.
Stroud, Jas. & Alfred, stoneware drain pipe manufacturers, Beavoir Wharf, Kingsland Basin, London, E.
Stuart Electric Light & Power Co., Lim., electric light contractors, 11, Queen Victoria-st., London, E.C.
Stuart & Mills, electrolier, lamp and lustre manufacturers, 89, Hatton-garden, London, E.C.
Stuart, John, manufacturing chemist, 120, Buchanan-street, Glasgow.
Stuart, R., telegraph agent (American), 30, Throgmorton-street, London, E.C.
Stubbs, W., earthenware manufacturer, Eastwood Pottery, Hanley, Stafford.
Sturge, John & Edmund, manufacturing chemists, 18, Wheeley's-lane, Birmingham.
Sturges, Bladon & Middleton, electro-plate manufacturers and dealers, 14, Weaman-street, Birmingham.
Sturtevont, T. T., electro gilder and plater, 19A, Farringdon-road, London, E.C.
Submarine Cable Trust Co. (telegraph), 66, Old Broad-street, London, E.C.
Submarine Telegraph Co. (Sir Jas. Carmichael, Bart.), 2, Throgmorton Avenue, London, E.C.
Sudgen, W., copper merchant, 27, Guildford-street, Leeds.
Suffield, William & Co., coppersmiths and braziers, Bridge-road, Millwall, London, E.
Suffield, E., steam engine boiler maker, Devonport-street, Commercial-road, London, E.
Sugg, W., & Co., Limited, electric apparatus manufacturers, Vincent Works, Westminster, London, W.
Sullivan, E. A., railway signal maker (block system), 20, Mawbey-road, Old Kent-road, London, S.E.
Sunderland, Martin, brazier, 278, High-street, Attercliffe, Sheffield.
Surrey Oil Company, oil refiners, Nye's Wharf, Peckham Park-road, London, S.E.
Sutcliffe, Isherwood, oil merchant, 27, Great Hampton-street, Birmingham, and 9, Fenchurch-street, London, E.C.
Sutcliffe, W., & Son, lead pipe manufacturers, Adelaide-street, Halifax
Suter, Samuel, electro gilder and plater, 56, Graham-street, Birmingham.
Sutherland, Angus, zinc manufacturer, 24, Oxford-street, Glasgow.
SUTTON & ASH, iron and steel merchants, Snow-hill, Birmingham.
Sutton, Geo. & Son, opticians, 209, Westminster-bridge-road, London, S.E.
Sutton & Nailor, oil merchants, 23, Whitechapel-road, London, E.
Sutton, Chas., optician, 179, Wardour-street, London, W.
Sutton, Chas., optician, 108, Holloway-road, London, N.
Sutton, Henry, optician, 329, Kennington-road, London, S.E.
Swain, John, wood engraver, 266, Strand, London, W.C.
Swain, Joseph, wood engraver, 6, Bouverie-st., Fleet-street, London, E.C.
Swainsland, Henry, mathematical instrument maker, 3, Offord-road, London, N.
Swan, D. & Co., spelter manufacturers, Mary-hill, Glasgow.
Swan, jun., & Aitken, spelter manufacturers, Mary-hill, Glasgow.
SWAN UNITED ELECTRIC LAMP CO., LIMITED, ELECTRIC LAMP MANUFACTURERS (INCANDESCENT), ST. MILDRED'S HOUSE, POULTRY, LONDON, E.C.
Swann, William, electro gilder and plater, 3½, Regent-parade, Birmingham.
Swansea Vale Spelter Co., Limited, spelter manufacturers, Swansea.
Swarbrick, Geo. Wm. F., mechanical engineer, 133, Cannon-street, London, E.C.
Swayne, G. W., mechanical engineer, 86, Queen's-road, Dalston, London, E.
Swift & Son, optician, 81, Tottenham-court-road, London, W.
Swift, John Arthur, mathematical instrument maker, 203, Glossop-road, Sheffield.
Swift, T., electro gilder and plater, 6, Perceval-street, Clerkenwell, London, E.C.
Swingewood, A., air-tight glass case maker, 21, Caroline-street, Birmingham.
Swingler, G. & J., telegraph wire manufacturer, 52, Staniforth-street, Bagot-street, Birmingham.
Swires, F., wire drawer, Moortop, Cleckheaton, Yorkshire.
Syer, Alfred, lead merchant, 444, Holloway-road, London, N.
Syer, Horace, lead merchant, 31, High-street, Notting-hill, London, W.
Sykes, H., steam engine maker, 66, Bankside, London, S.E.
Sykes, John, steam engine boiler maker, New Whittington, Chesterfield.
Sykes, Robert, steel merchant, Market-street, Stalybridge.
Sykes, William Robert, railway signal maker (block system), 84, Kirkwood-road, Nunhead, S.E.

Digitized by Google

Symes, Samuel, melter, Belle Isle, York-road, King's-cross, London, N.
Symons Bros., mechanical engineers, 157, Southwark-bridge-road, S.E.
Symons, Wm. Hy., F.R.M.S., F.C.S., analytical chemist, 2, Queen's-terrace, St. John's-wood, N.W.
Syree, Edward, wire worker and weaver, 89, St. John-street, London, E.C.

T.

Taberer, J., electro-gilder and plater, 79, Dean-street, Soho, London, W.
Tainty, Alfred, rolling mills and rolled metal manufacturer, 175, Great Hampton-row, Birmingham.
Taite & Carlton, mechanical engineers, 63, Queen Victoria-street, London, E.C.
Talbot and Alder, grease manufacturers, 60, Fenchurch-street, London, E.C.
Talbot, Andrew, manufacturing chemist, 69, Victoria-road, Glasgow.
Talbut, John, electric bell fitter, Swan-buildings, Edmund-street, Birmingham.
Tams, J., earthenware manufacturer, Stafford-street, Longton, Stafford.
TANGYE BROS., gas and steam engine makers, 35, Queen Victoria-street, London, E C.
TANGYE BROTHERS & RAKE, mechanical engineers, 4, St. Nicholas-buildings, Newcastle.
TANGYES, LIMITED, engineers, Cornwall Works, Soho, London, and Stephenson-place, Birmingham.
Tanite (The) Company, emery wheel and machinery makers (Stroudsburg Pennysylvania, U.S.), 42, The Temple, Dale-street, Liverpool.
Tannett, Walker & Co., steam engine boiler makers, Leeds.
Tanner, G. N., mechanical engineer, 86, Camden-street, Camden Town, London, N.W.
Tansley, A. E., mining engineer, Bedworth, Nuneaton.
Tapton Chemical Works, manufacturing chemists, Tapton, Chesterfield.
Tasker, Sons & Co., electric light engineers and telephone apparatus, South Derbyshire Electric Works, New Station-road, Sheffield (Johnson's Patent Transmitter).
Tate, Alex. N., analytical chemist Heathfield, Columbia-place, Oxton, Birkenhead.
Tate, Robt. Perry, glass shade makers and dealers, 31, Holborn-hill, London, E.C.
Tatpell, H., electro-gilder and plater, 120, Salisbury-square, Fleet-street, London, E.C.
Tatum, Jas., air-tight glass case maker, 32 and 33, King David-lane, Shadwell, London, E.
Taunton, R. H., and Hayward, telegraph pole (iron) manufacturers, Heneage-street, Birmingham.
TAUNTON, R. H. & HAYWARD, wrought iron tube makers, also makers of steel tubes and all descriptions of engineering work entailing use of tubes, 117, Palmerston-buildings, Old Broad-street, London, E.C.
Taunton & Johnson, electro-plate manufacturers and dealers, 296, Broad-street, Birmingham.
Tay & Francis, electro-gilders and platers, Leopold-street, Birmingham.
Taylor, Arthur & Co., oil merchants, 32 and 34, Commercial-street, London, E.
Taylor Brothers, electrolier lamp lustre, &c., manufacturers, 232, Bradford-street, Birmingham.
TAYLOR & CHALLEN, mechanical engineers and pulley and shafting makers, Derwent Foundry, 99, Constitution-hill, Birmingham.
TAYLOR & CO., mica merchants, 90, Hatton-garden, London, E.C.
Taylor & Co., emery wheel and machinery makers, 30, St. Paul's-square, Birmingham.
TAYLOR, CHARLES, pully and shafting maker, maker of lathes especially for electricians, Edmund-street, Birmingham.
TAYLOR, D. F. & CO., wire drawers, brass and copper and high conductivity copper wire, New Hall Works, George-street-parade, Birmingham.
Tayler, D. F. & Co., wire drawers and manufacturers, 89, Newgate-street, London, E.C.
Taylor, E. C. & Co., rolling mills and rolled metal manufacturers, Surbiton Metal Works, Cato-street, Birmingham.
Taylor, Ed., galvanizer, 86, New John-street West, Birmingham.
Taylor & Farley, iron founders, Summit Foundry, West Bromwich, Birmingham.
Taylor & Grove, electro-gilders and platers, 3, St. Mary-row, Birmingham.
Taylor, G. C., mining engineer, Bank Cot, Dudley.
Taylor, Henry E., consulting engineer, Newgate House, 15, Newgate-street, Chester.
Taylor, James & Co., steam engine makers and mechanical engineers, 110, Cannon-street, London, E C.
Taylor, J., optician, 11, Bridlesmith-gate, Nottingham.
Taylor, J., rope and twine manufacturer, Cheetham-hill-road, Dukinfield.
Taylor, J., rope and twine manufacturer, St. John's Ropery, Stalybridge.
Taylor, James, wire worker and weaver, 68, Lower Essex-street, Birmingham.
Taylor, James, Junr., coppersmith and electro-plater, 61, 63 and 65, Mitchell-street, Glasgow.
Taylor, John, iron founder, Fawdry-street, Smethwick, Birmingham.
Taylor & Parsons, electric bell manufacturers, Bank-street, Piece-hall-yard, Bradford.
Taylor, R., wood engraver, 17, New Bridge-street, London, E.C.
Taylor, S. & Co., galvanizers and galvanized iron wire manufacturers, 145, Lionel-street, Birmingham.

Digitized by Google

Taylor, Samuel Irwin, wire manufacturer, 5, Little Love-lane, Wood-street, London, E.C.
Taylor, Tunnicliff & Co., earthenware manufacturers, Eastwood, Handley, Stafford.
Taylor, Thomas Price, rolling mills, and rolled metal manufacturer, Plume Rolling Mills, Long-acre, Birmingham.
Taylor, Th. T., mechanical engineer, 42, Long-lane, London, S.E.
Taylor, Wm., Jun., & Co., oil refiners, 23, Billiter-street, London, E.C.
Taylor, W. H. & F. H., electric alarm manufacturers, 37, Shambles, Worcester.
Teague, John & Son, air-tight glass case makers, 42, Frederick-street, Gray's-inn-road, London, W.C.
Teed, Frank L., analytical chemist, 8, Victoria-chambers, London, S.W.
Tee's Side Iron & Engine Works Company, mechanical engineers, 97, Cannon-street, London, E.C.
Telegraph Construction and Maintenance Company, Limited, telegraph works, 38, Old Broad-street, London, E.C.
Telford, Wm. N., optician, 9, St. John's-street, Chester.
Temple & Co., electric bell fitters, High-street, Stratford, London, E.
Temple, R., & Crook, F., bell hanging engineers, 6, Motcomb-street, Belgrave-square, London, S.W.
Tennant, Chas. & Co., manufacturing chemists, St. Rollox, and 15, St. Vincent-street, Glasgow.
Terey, Charles A., maker of electrical specialities, 114, Lambeth-road, London, S.E.
Terrell, Wm. & Sons, Limited, steam packing makers, Welsh-back and Cannon-marsh, Bristol.
Terry & Taylor, modellers, 119, Newhall-street, Birmingham.
Terry, E., mining engineer, Wadham's-pool, Dudley.
Teschemacher & Smith, analytical chemists, Commercial Sale Rooms, Mincing-lane, London, E.C.
Tetlow, H., wire weaver, Miles Plating Wire Works, Varley-street, Oldham-road, Manchester.
Thames Iron Works and Shipbuilding Co., Limited (the Hodson's), high speed engine makers, Orchard-yard, Blackwall, London, E.
Tharsis Sulphur & Copper Co., 9, Mincing-lane, London, E.C., and 136, West George-street, Glasgow.
Theiled & Sons, M., manufacturing electricians, 86, Canonbury-road, London, N.
Theobald, John, & Co., opticians, 20, Church-street, Kensington, London, W.
Thew, Thos., brass finisher, 112, High-street, East Sunderland.
Thickett, J., silver solder manufacturer, 47, 49 & 51, Charles-street, Sheffield.
Thistleton, J. B., medical battery manufacturer, galvanist & electrician, 1, Old Quebec-street, Portman-square, London, W.
Thomas, J. J., & Co., wire workers and weavers, 87, Queen Victoria-street, London, E.C.
Thomas, C. E., oil refiner, 8 & 9, Barking-alley, London, E.C.
Thomas, George, pulley maker, 7, Lawrence-street, Birmingham.
Thomas, Henry, electric bell fitter, 27, Cyrus-street, Clerkenwell, London, E.C.
Thomas, John, pulley maker, 94, Pritchett-street, Birmingham.
Thomas, Richard, W., optician, 10, Pall Mall, London, S.W.
Thomas, Samuel, W., charcoal maker and dealer, 40, Gracechurch-street, London, S.E.
Thomée, F., wire drawer, 8, Coleman-street, London, E.C.
THOMPSON & BOULT, patent agents, &c., 323, High Holborn, London, W.C.
Thompson Bros., & Walker, steam engine makers, Seaham.
Thompson, G. C. & A., hinge makers, 89, Cannon-street, London, E.C.
Thompson, W., & Co., electro gilders and platers, 79, Spencer-street, Birmingham.
Thompson & Wright, mechanical engineers, 10, Cornhill, London, E.C.
Thompson, Albert H., designer, 13, Winna-road, Sheffield.
Thompson, E., pulley and shafting manufacturer, Rawdon, near Leeds.
Thompson, Geo. Wm., optician, Hockley-hill, Birmingham
Thompson, J., mechanical engineer, 71 & 72, Fair-street, Horselydown, London, S.E.
Thompson, James, electro plater, Soho-place, 99, Napier-street, Sheffield.
THOMPSON, R., medical battery manufacturer, &c., 5, Devonshire-square, Bishopsgate, London, E.
Thompson, Camuel, vulcanized india rubber manufacturer, machine works, Livesey-street, Manchester.
Thoms, W., electro gilder and plater, 36, Spencer-street, Clerkenwell, London, E.C.
Thomson, Andrew & John, coppersmiths & braziers, 4, Plaistow-road, Victoria Docks, London, E.
Thomson, Arch., & Co., wire rope manufacturers, 58, W. Howard-street, Glasgow.
Thomson, Gavin, & Co., india rubber manufacturers, Croft-street, Deptford, London, S.E.
Thomson, J., & Sons, pottery manufacturers, 573, Gallowgate, Glasgow.
Thomson, Matthew, screw maker, 14, Charles-street, St. Rollox, Glasgow.
Thomson's Patent Ball Valves (office of), valve manufacturer, 43, Bloomsbury-street, London, W.C.
Thomson, R. B., india rubber merchant, 73 & 75, Stockwell-street, Glasgow.
Thomson & Son, oil merchants, 21, London-street, London, E.C.
Thomson, Walter, air-tight glass case maker, 43, St. John-street-road, London, E.C.
Thorburn, Thos., steel manufacturer and merchant, 51, St. Vincent-street, Glasgow.
Thornberg, W. H., jun., consulting, electrical, mechanical and civil engineer, 121, Colmore-row, B'ham.
Thorneloe & Co., electrolier lamp and lustre manufacturers, 57, Barbican, London, E.C.
Thornewill & Warham, mechanical engineers, 18, Great George-street, London, S.W.

Digitized by Google

THORNTON, H., & CO., wood engravers, 89, Farringdon-street, London, E.C.
Thornton, Currie & Co., machinery belt makers, &c., 43, 45 & 47, Jamaica-street, Glasgow.
Thorpe, Fredk., wood engraver, 53, Tavistock-road, London, W.
Thorpe, Harry, electric bell manufacturer and fitter, 53, Theobald's-road, London, W.C.
Thorpe, John, steam engine boiler maker, Newton Moor boiler works, Newton Moor, Manchester.
Thorpe, Stuart, designer, 15, Radcliffe-road, Sharrow-vale, Sheffield.
Thorton, Charles, coppersmith and brazier, 1, Upper Charles-street, Goswell-road, London, E.C.
Thurkle, E., mechanical engineer, 5, Denmark-street, Soho, London, W.C.
Thurnling, A., mechanical engineer, 19, Greek-street, Soho, London, W.
Thwaites & Reede, electric clocks, Bowling Green-lane, London, E.C.
Tibbald, James & Co., glass shade makers, Albert Embankment, London, S.E.
Tiddy, Wm. Ninnis, electric light engineer, 12, Princes-street, Hanover-square, London, W.
Tidge, Hevens, & Co., lightning conductor manufacturers, Brunswick works, Robin Hood-lane, Poplar, London, E.
Turney, Matthew, 337, wire worker and weaver, 337, New North-road, London, N.
Tilbury, Henry, brass manufacturer, 54, Upper Marylebone-street, London, W.
Tilbury, William, brass manufacturer, 14, Clevéland-mews, Cleveland-street, Fitzroy-sq., London, W.
Tiddesley, Jessie, iron tank manufacturer, Crescent iron works, Willenhall, Staffordshire.
Till & Gough, earthenware manufacturers, Common Side pottery, Church Gresley, Burton-on-Trent.
Till, Thos., & Sons, earthenware manufacturers, Liverpool-road, Burslem, Staffordshire.
Tilley, William Henry, electrolier lamp and lustre manufacturer, 53, Kingsland-road, London, E.
Tillott, Geo., mechanical engineer, 10½, St. James'-street, Islington, London, N.
Timings, David Samuel, tool maker, 23, Great Hampton-street. Birmingham.
Timings, S., & Co., brass founders, 188, Warstone-lane, and 23, Gt. Hampton-street, Birmingham.
Tindale Spelter Company, wire manufacturers, 1, Dean-street, Newcastle-on-Tyne.
Tinker, Shenton, & Co., steam engine boiler makers, Flowery Field, Newton Moor, Manchester.
Tinsley, E., & Co., rivet makers, 19, Gracechnrch-street, London, E.C.
Tinsley, G., & Co., earthenware manufacturers, Queen-street pottery, Burslem, Staffordshire.
Tisley, S. C. & Co., electrical instrument makers, 172, Brompton-road, London, S.W.
Titley, Robert, & Co., screw manufacturers, 270, Bishop-street, Birmingham.
Tolhurst, John, & Sons, oil and lead merchants, 60 & 63, Tooley-street, London, S.E.
Tolman, G., electric bell manufacturer, 33, Bell-street, Wolverhampton.
Tomey, Joseph & Son, gauge glass manufacturers, Catherine-street, Birmingham.
Tomlinson & Rettich, electrolier lamp and lustre manufacturers, 34 & 35, Gerrard-street, London, W.
Thompson & Co., bolt and nut mannfacturers, 1, Broad-street-buildings, Liverpool-street, London, E.C.
Thompson, Reynolds, & Co., telegraph contractors, Castle-works, Wolverhampton.
Tone, J. F., consulting engineer, 67, Pilgrim-street, Newcastle.
Tongue & Birkbeck, patent agents, 34, Southampton-buildings, London, W.C.
Tonkin, E. N. & Co., cotton waste merchants, 172, Stamford-street, London, S.E.
Tonks, W., & Sons, lightning conductor manufacturers, 201, Mosely-street, Birmingham.
Tonks, George T., steam engine boiler fittings manufacturer, 62, Rea-street, Birmingham
Toope's Asbestos Company, Limited, boiler non-conducting composition makers, Ben Johnson's-road, Stepney, London, E.
Tooth, W. H., mechanical engineer, 12, Laurence Pountney-lane, London, E.C.
Topham, Charles & Co., tube brush manufacturers, 3A, Coleman-street, Bunhill-row, London, E.C.
Topham & Snushall, galvanizers, 26, Oxford-street, Birmingham.
Topping, Amos, optician, 28, Charlotte-street, Caledonian-street, London, N.
Torr, Geo.. charcoal maker and dealer, Buck's-row, Thomas-street, Whitechapel, London, E.
Torr, George, sulphate of ammonia manufacturer, Trundley's-lane, Lower-road, Deptford, London, S.E.
Townshend, Edwin & Son, india rubber manufacturers, 25, Belvedere-road, London, S.E.
Townson & Mercer, electrical instrument makers, 89, Bishopsgate-street Within, London, E.C.
Townsend, J., manufacturing chemist, 13, Crawford-street, Port Dundas, Glasgow.
Toynbee, Edward, electro motor manufacturer, 18, Malvern Villas, Willesden.
Tracy, John H., mechanical engineer, 18, Compton-street, Clerkenwell, London, E.C.
Tranter, Wm., brass caster, 13, Court, Coleshill-street, Birmingham.
Travis, G., & Co., electro-plate manufacturers and dealers, Bath-street, Sheffield.
Treasure, J. B., & Co., gauge glass manufacturers, 8, Vauxhall-road, Liverpool.
Treble, George, & Son, air-tight glass case makers, 72, Crondall-street, London, N.
Treffry's Estate, lead smelters, Parr, Cornwall.
Treggon & Co., Limited, galvanizers, 19, Jewin-street, London, E.C.
Tremlett, Richard, mathematical instrument maker, 9, Myddleton-street, London, E.C.
Tribe & Co., stoneware drain pipe manufacturers, Roland-wharf, 71, Lots-rd., King's-rd., London, S.W.
Trigg, Jas., & Son, oil merchants, Sandy's-row, Bishopsgate, London, E.
Tringham, Avila, oil refiner, 161, Hanbury-street, Mile-end, London, E.
Troman, Timothy, iron founder, 197, Heneage-street, Birmingham.

Digitized by Google

Trotman, Chas. Wm., steam engine boiler maker, 60, Long-lane, Borough, London, S.E.
Troughton & Simons, mathematical instrument makers, 138, Fleet-street, London, E.C.
Trurnit, F., wire drawer, 18, Finsbury-circus, London, E.C.
Try, Thomas, brass manufacturer, 4, Poland-street, Oxford-street, London, W.
Tuck & Co., Limited, leather driving band makers, 116, Cannon-street, London, E.C.
Tucker, Francis & Co., oil merchants, 117, Kensington High-street, London, W.
Tucker & Son, electrolier lamp and lustre manufacturers, 23, New-street-square, London, E.C.
Tudors, Mash & Co., oil merchants, 17, College-street, London, E.C.
Tullis, John, & Son, leather driving band makers, 110, Cannon-street, London, E.C.
Tullis, Thomas L., & Co. (Wm. Reid & Co., agents), leather driving band makers, 5, New London-street, London, E.C.
Tully, N., metal merchant, 15, George-street, Walsall.
Tunstall Bone & Chemical Manure Works, Tunstall-bridge, Tunstall, Stafford.
Tushy & Eccleson, rope and twine manufacturers, Freeman-street, Birkenhead.
Tupp, G. J., mechanical engineer, Creek Works, Middle-mall, Hammersmith, London, W.
Turin Asbestos Co., 23, Addle-street, London, E.C.
Tupper & Co., galvanizers and galvanized iron wire manufacturers, 6, Berkley-street, Birmingham.
Turnbull, Alex., & Co., valve manufacturers, Glasgow.
Turnbull & Co., manufacturing chemists, 37, W. George-street, Glasgow.
Turnbull, Stewart & Co., sheet lead and lead pipe manufacturers, 47, Oswald-street, Glasgow.
Turnell, George Miles, iron founder, 94, Aston-road, Birmingham.
Turner, A., & Sons, earthenware manufacturers, Bradley Pottery, Bilston, Stafford.
Turner, Blewitt & Co., oil merchants, Orchard-place, Blackwall, London, E.
Turner & Co., mechanical engineers, 37 & 38, East-street, Manchester-square, London, W.
Turner & Co., rivet manufacturers, 6, Fisher-street, Birmingham.
Turner, E. R., & F., steam engine makers, Ipswich.
"Turner" Gas Engine Co., Limited (The), St. Albans Iron Works, St. Albans.
Turner, G. W., & Sons, earthenware manufacturers, Victoria Works, Tunstall, Stafford.
Turner & Jepson, electro-plate manufacturers and dealers, Cadman-lane, Norfolk-street, Sheffield.
Turner & Rhodes, earthenware manufacturers, Stepney-lane, Hull.
Turner, T. B., & Co., india rubber manufacturers, 6, York-street, Glasgow.
Turner, T. B., & Co., steam packing manufacturers, Scotia Mills, Gerard-street, Derby.
Turner, Wm., & Son, brass manufacturers, 18, Poland-square, Oxford-street, London, W.
Turner, Edwin Leonard, steam engine boiler composition maker, Palissy Soap, Grease and Oil Works, Bernard-road-park, Sheffield.
Turner, F. W., gas engine maker, 9, St. Andrews'-street, Holborn-circus, London, E.C.
Turner, G. E., mechanical engineer, 20, Worship-street, Finsbury, London, E.C.
Turner, Jas., mechanical engineer, 21, Corn Exchange-chambers, Seething-lane, London, E.C.
TURNER, JOHN, nail manufacturer, Elmbank-street, Glasgow.
Turner, J., coppersmith, 32, Marshouse-lane, Birmingham.
Turner, J., electro-gilder and plater, 52, Orchard-street, Sheffield.
Turner, J. F., mechanical engineer, 60, Baring-street, New North-road, N.
Turner, J. G., electric bell fitter, 88, Crawford-street, Portman-square, London, W.
Turner, S., rivet maker, 63, Bishopsgate-street Within, London, E.C.
Turner, Thos., mechanical engineer, Garth-street, Lower Shadwell, London, E.
Turner, Wm., steam engine boiler and valve maker, Adelphi-street, Salford, Manchester.
Turton Bros., & Matthews, steel file and machine tool makers, 34, Gracechurch-street, London, E.C.
Turton, Geo., mechanical engineer, 4, Westminster-chambers, London, S.W.
Turton, Thos., & Sons, machine tool makers, 90, Cannon-street, London, E.C., and at Sheffield.
Tweedy, Joseph, & Co., railway signal makers, 15, New Broad-street, London, E.C., and Carlyle.
Twibill, Joseph, steam engine and boiler fittings manufacturer, Broadheath, Altrincham.
Twining, G. W., & Co., bolt and nut manufacturers, 81, Gracechurch-street, London, E.C.
Tyack, W. J., & C., electric bell manufacturers, Church-street, Camborne, Cornwall.
Tye, E., electro-plate manufacturer and dealer, 18, Union-passage, Birmingham.
Tyer & Co., railway signal manufacturers, Ashwin-street, Dalston-junction, London, E.
TYLER, HAYWARD & CO., steam engine and boiler makers, 84 and 85, Upper Whitecross-street, London, E.C.
Tyler, H., & Co., mechanical engineers, 39, Queen Victoria-street, London, E.C.
Tyler, John, wire worker and weaver, 56, Lee-bank-road, Birmingham.
Tyler, J. H., mechanical engineer, 1, Queen-street, London, E.C.
Tyler, W., electro-plate manufacturer and dealer, 1, Brunswick-road, Sheffield.
Tylor, J., & Sons, valve manufacturers, 2, Newgate-street, E.C.
TYNE BOLT AND RIVET CO., Gateshead.
Tyne Foundry and Engineering Co. (The), mechanical engineers, 45, Church-street, Deptford, London, S.E.
Tyne Wire Drawing Co., South Shore, Gateshead.

Digitized by Google

Typographic Etching Co., electrotypers, 23, Farringdon-street, London, E.C.
Tysal, E., electro-gilder and plater, 24, Poland-street, Oxford-street, W.
Tyzack, S., & Co., rivet makers, Monkwearmouth Iron Works, Sunderland.
Tyzack, Wm. A., & Co., tool makers, Hereford-street, Sheffield.

U.

Underhill & Co., stoneware drain pipe manufacturers, 170 to 173, Upper Thames-street, London, E.C.
UNDERHILL, JAMES & JOSEPH, brass founders, Rifle Hill Brass Foundry, Whitehead-road, Aston-park, Birmingham.
Ungar, Julius & Co., electrolier lamp and lustre manufacturers, 52, Commercial-street, London, E.
Unger, F. & Co., electrolier lamp and lustre manufacturers, 20, Hatton-garden, London, E.C.
Ungley, Wm. Thos., wire worker and weaver, 35, Mount Pleasant, Gray's-inn-road, London, W.C.
Union Engineering Company, turbine and water wheel makers, 2, Clarence-buildings, Booth-street, Manchester.
United Agencies, Limited, steel wire manufacturers, Jeffrey's-square, St. Mary Axe, London, E.C.
UNITED ASBESTOS COMPANY, LIMITED, asbestos manufacturers and mine owners, 161, Queen Victoria-street, London, E.C.
United Telephone Company, Limited, 36, Coleman-street, London, E.C.
Universal Electric Light Company, electric light contractors, 13 and 14, King-street, London, E.C.
UNIVERSAL INVENTORS & PATENTEES FINANCIAL COMPANY, LIMITED, PATENT AND DESIGN REGISTRATION AGENTS, 30, FINSBURY PAVEMENT, LONDON, E.C.
Universal Steam Tram Construction Company, mechanical engineers, 35, Finsbury-circus, London, E.C.
Uphall Oil Company, Limited, manufacturing chemists, 130 West Nile-street, Glasgow.
Uphall Oil Company, oil merchants, 1, Bury-street, St. Mary Axe, London, E.C.

V.

VANNER & PREST, makers of molliscorum, harness composition, black oil, and brass paste, 48, Ormside-street, London, S.E.
Varley, O. and Frederick H., telegraph engineers, Mildmay-street, Ball's Pond, London, N.
Varley, S. A. & Co., dynamo and magneto electric machine makers, 2, Hamilton-road, Highbury-park, London, N.
Vaughan Brothers, charcoal maanufacturers, 180, Upwell-street, Grimsthorpe, Sheffield.
Vaughan & Brown, electrolier lamp lustre, &c., manufacturers, 16, Kirby-street, London, E.C.
Vaughan, J., galvanizer and galvanized iron wire manufacturer, Cave-street, St. Paul's, Bristol.
Venables, George, wire worker, Common, Sandbach.
Venice and Murano Glass and Mosaic, Company, Limited, electrolier lamp and lustre manufacturers, 30, St. James'-street, London, S.W.
Vereinigle Filzfabriken Giengen, A/B., felt makers, 81, Queen Victoria-street, London, E.C.
Verel, Julien James, india rubber merchant, 179, W. George-street, Glasgow.
Verity, Bing & Sons, electric light engineers, King-street, Covent-garden, London, W.C.
Vernon, Betts & Co., telegraph engineers, 23, Leadenhall-street, London, E.C.
Vernon & Ewens, galvanizers and galvanized iron wire mannfacturers, Central Iron Works, Cheltenham.
Vernon, J. & C., earthenware manufacturers, Waterloo Works, Burslem, Stafford.
Vernon, Jabes & Co., wire drawers, Northern Steel Works, Attercliffe-road, Sheffield.
Vessey & Friend, steel manufacturers, Brunswick Steel Works, New Thomas-street, Sheffield.
Vessey, F. S., optician, 12, Hockley, Nottingham.
VICTOR GAS ENGINE COMPANY, gas engine makers, special Victor, for electric lighting, is unrivalled, 86, Dale-street, Liverpool.
Victoria Bolt and Rivet Works, bolt and screw makers, 37, Elliot-street, Glasgow.
Victoria Docks Engine Works Company, mechanical engineers, 57, Gracechurch-street, London, E.C.
Victoria Engineering Company, shafting manufacturers, Stockport.
Victoria Wharfing and Manufacturing Company, chemical merchants, Old Ford Lock, Wick-lane, Old Ford-road, Bow, London, E.
Vieille Montagne Zinc Company, zinc merchants, Fitzroy Works, Euston-road, London, N.W.
Vigor, F. G. & R., electric bell fitters, 38, Burgess-street, Limehouse, London, E.
Villiers Spelter Company, Limited, wire manufacturers, Swansea.
Vivian, H. H. & Co., brass and copper wire manufacturers, 2, Lombard-court, London, E. C., and at 46, George-street-parade, Birmingham.
Vivian, H. H. & Co., brass and copper wire manufacturers, 10, Laurence Pountney-lane, London, E.C.

Digitized by Google

Vivian & Sons, copper, lead and zinc merchants, Bond Court House, 3, Bond-court, Walbrook, London, E.C.
Voelcker, Augustus, P.H.D., F.R.S., analytical chemist, 11, Salisbury-square, London, E.C.
Voetters, C. Soehne, electrolier lamp and lustre manufacturer, 9, New Broad-street, London, E.C.
Von Gahlen Emile & Co., rivet makers, 6, Lime-street, London, E.C.
Vorley, H., manganese merchant, John-street, London-road, Sheffield.
Vulcan Foundry Company, Limited, telegraph cable making machine manufacturers, Newton-le-Willows.
Vyle, S., electrician, 22, Borough-road, Middlesborough.

W.

Waddington, John, mechanical engineer, 35, King William-street, London, E.C.
Waddington, T., black lead manufacturer, West View, Bridlington Quay.
Wagner & Goldschmidt, electrolier lamp and lustre manufacturer, 14, South-street, Finsbury, London, E.C.
Wailes, George, & Co., dynamo and electric machine manufacturers, 258, Euston-road, London, N.W.
Waite, Josiah, & Thomas, iron wire manufacturers, Morville-street, Birmingham.
Waite, William, bronzist, 12A, Margaret-street, Cavendish-square, London, W.
Wale, F. W., optician, 24, Gallowtree-street, Leicester.
Wales & McCulloch, electro-gilders and platers, 22, Ludgate-hill, London, E.C.
Walker Alkali Company, alkali manufacturers, 9, Dean-street, Newcastle.
Walker Alkali Company, soda manufacturers, Walker, Newcastle.
Walker Bros., galvanizers, Pleck-road, Walsall, near Birmingham.
Walker & Co., brass founders, 81, Camden-street, Birmingham.
Walker & Carter, earthenware manufacturers, Church-street, Stoke-on-Trent.
Walker, Eaton & Co., ironfounders, 3, Spital-hill, Sheffield.
Walker & Emley, electric bell manufacturers, 42, Westgate-road, Newcastle-on-Tyne.
Walker, G., & Son, manufacturing chemists, 48, French-street, Glasgow.
Walker & Hall, electro-plate manufacturers and dealers, 45, Holborn-viaduct, London, E.C.
Walker, Joseph, Parker & Co., tube makers, 110, Cheapside-street, Glasgow.
Walker, J. P., & Co., lead merchants, Lead Works-lane, Chester.
Walker, Robert, & Co., manufacturing chemists, 205, Buchanan-street, Glasgow.
Walker, Sidney F., & Oliver, dynamo-magneto electric machine manufacturers, 195, Severn-road, Canton, Cardiff.
Walker, T. W., & J., copper manufacturers, 21, West Nile-street, Glasgow.
Walker, Thomas, & Son, gauge makers, 58, Oxford-street, Birmingham.
Walker, C. V., telegraph engineer, South-Eastern Railway Company, Cannon-street, London, E.C.
Walker, George, zinc manufacturer, 140, Pollock-street, Glasgow.
Walker, George, steel file manufacturer, Midland Works, Whittall-street, Birmingham.
Walker, J., earthenware manufacturer, 31, High-street, Longton, Staffs.
Walker, John, glass blower, 42, Great Garden-street, Mile-end New Town, London, E.
Walker, John, chronometer maker, 77, Cornhill, London, E.C.
Walker, John G., optician, 44 and 45, Clyde-place, Glasgow.
Walker, Joseph, tool maker, 13 and 14, Augusta-street, Birmingham.
Walker, J. S., gutta percha merchant, 77, Queen-street, Glasgow.
Walker, R., wire drawer, Walker's Mills, Northgate, Cleckheaton, Yorkshire.
Walker, S., brass founder, Station-street, Mansfield.
WALKER, SAMUEL, brass and copper wire manufacturer, Lower Fazeley-street, and 3, Church-street, Birmingham.
Walker, S. F., telegraph engineer, Black Boy-yard, Nottingham.
Walker, T., brass founder, 20, St. Luke's-street, Derby.
Walker, W., wire drawer, Hartshead, Normanton.
Walker, W., brass founder, Victoria-street, Newark.
Walker, William Joseph, ironfounder, Neville-street, Masbro', Rotherham.
Walkers, Parker & Co., lead merchants, 63, Belvedere-road, London, S.E.
Walkers, Parker, Walker & Low, lead pipe manufacturers, Low Elswick, Newcastle-on-Tyne.
Walkley, Henry, & Co., india rubber manufacturers, 5, Strand, London, W.C.
Wall, Charles, & Son, galvanizers, 28, Holborn-viaduct, London, E.C.
Wall, John, mechanical engineer, 49½, Kenion-street, Birmingham.
Wallace & Co., earthenware manufacturers, Pottery-lane, Newcastle.
Wallace & Connell, brass founders, 65, M'Alpine-street, Glasgow.
Wallace, H., & Co., acid manufacturers, 60, Mark-lane, London, E.C.
Wallace, John, & Co., metal merchants, 81, Gracechurch-street, London, E.C.
Wallace, John, india rubber merchant, 15, Robertson-street, Glasgow.
Waller, G., & Co., engineers, Holland-street, Southwark, London, S.E.

Digitized by Google

Waller, Frank, mathematical instrument maker, Clough-road, Sheffield.
Walley, J., steam engine boiler maker, St. Mary's Bridge Works, Derby.
Wallis, George Carpenter, steel merchant, Haymarket-chambers, Old Haymarket, Sheffield.
Wallis & Steevens, steam engine makers, North Hants Iron Works, Basingstoke.
Wallis, William James, mechanical engineer, 3, King-street, Cheapside, London, E.C.
Walmesley & Edwards, steam engine makers, 16, William Moult-street, Liverpool.
Walton, J., & Co., lead manufacturers, Bellihope Lead Works, Frosterley, Darlington.
WALSH, JOHN W., manufacturer of globes for electric lighting. Works: Soho, Birmingham. London offices: 4, Holborn-circus, E.C.
Walsh, O. S., galvanizer and galvanized iron wire manufacturer, 153, Dudley-road, Wolverhampton.
Walter Bros., electric bell fitters, 77, Chenies-mews, Bedford-square, W.C.
Walter, Daniel, & Sons, insulated wire manufacturers, 43 and 45, Newgate-street, London, E.C.
Walton, E., & Co., brass founders, Snowhill, Wolverhampton.
Walton, Turner & Walton, oil merchants, 15, Lower Whitecross-street, London, E.C.
Wanklyn, James Alfred, analytical chemists, 7, Westminster-chambers, London, S.W.
Warburton & Sons, manufacturing chemists, Chemical Works, Worksop.
Ward & Co., mechanical engineers, 9, Wells-street, Oxford-street, London, W.
Ward, Blonk, & Co. (F. & B. Huntsman), steel sellers, rollers, and forgers, 2, Wicker, Sheffield.
Ward & Forrest, brass founders, 78, Parade, Birmingham.
Ward, George, & Co., ironfounders, Damstead Works, Dronfield, Sheffield.
Ward, William, & Co., ironfounders, Great Bridge, Tipton, Birmingham.
Ward, John, tool maker, 53, Kenion-street, Birmingham.
Ward, R., electric light engineer, 7, Northumberland-street, Trafalgar-square, London, W.C.
Ward, S., glass blower, 24, Great James-street, Bedford-row, London, W.C.
Ward, T., bolt and nut manufacturer, 148, Woodbourn-road, Attercliffe, Sheffield.
Ward, Wm., manufacturing chemist, 71, New-street, West Bromwich.
Ward, Wm. Edwin, tin merchant, 49, James-street, Bethnal-green, London, E.
Ward, W., zinc worker, Skinner-street, Wolverhampton.
Warden, J., & Sons, iron telegraph pole manufacturers, Broad-street, Birmingham.
Warden, J., & Sons, bolt and nut manufacturers, 90, Cannon-street, London, E.C.
Warden, W. M., & Co., telegraph instrument manufacturers, 27, Great George-street, London, S.W.
Warden, F. H., bolt and nut manufacturer, 27 and 28, Lionel-street, Birmingham.
Warden, Thomas, iron, steel, and general merchant, 12, Great Charles-street, Birmingham.
Wardhaugh & Bulmer, telegraph cable making machine manufacturers, Back-lane, Gallowgate, Newcastle-on-Tyne.
Wardill & Co., mechanical engineers, Gould's-hill, Shadwell, London, E.
Wardlaw, Johnston, jun., pottery manufacturers, Wardlaw-street, Glasgow.
Wardlaw, Samuel and Charles, steel felters, rollers, and forgers, Congress Works, Oughtibridge, Sheffield, and Sheffield.
Wardsend Steel Co. (Benj. George and Wm. W. Wood, proprietors), Wardsend, Owlerton, Sheffield.
Warhurst, W., barytes maker, Town End, Chapel-en-le-Frith.
Warne, Wm., & Co., india rubber manufacturers, 20, Union-street, Glasgow.
WARNE, W., & CO., steam packing makers, 29, Gresham-street, London, E.C.
Warner, John, & Sons, coppersmiths and braziers, Crescent Foundry, 27, Jewin-crescent, Cripplegate, London, E.C.
Warren Brothers, steam engine boiler maker, Stanton, Burton-on-Trent.
Warren, Henry, parchment maker, 97, Russell-street, Bermondsey, London, S.E.
Warren, Mrs. A., electric bell fitter, 8, Marshall-street, Golden-square, London, W.
Warren, R., galvanizer, 57, Park-street, Birmingham.
Warrington, T. A., mechanical engineer, 30, King-streeet, Cheapside, London, E.C.
Warriss, George, electro plater, School of Art Works, 32, Howard-street, Sheffield.
Warsop & Hill, hydraulic engineers, Deering-street, Wilford-road, Nottingham.
Wartski, Barnett, & Son, india rubber manufacturers and dealers, 118, Commercial-street, London, E.
Washington Chemical Co., chemical manufacturers, 26, Grey-street, Newcastle.
Wass, Anne, & Son, lead miners and smelters, Lea, Derby.
Wass & Son, lead smelters, Lea Lead Works, Cornford.
Wasteneys, John, & Co., ironfounders, Eckington, Chesterfield.
Watchurst, Charles, mechanical engineer, 36 and 38, Abbey-street, Bermondsey, London, S.E.
Waterall, G., & Son, opticians, 2, Chapel-bar, Market-place, Nottingham.
Waterfall, H., & R., & Barber, steel manufacturers, 12, Bailey-lane, Sheffield.
Waterfield, E., mechanical engineer, 225, Grange-road, London, S.E.
Waterhouse & Co., electro gilders and platers, 25, Dame-street, Dublin.
Waterlow & Sons, Limited, telegraph paper makers, 95, London-wall, London, E.C.
WATERSTON, G., & SON, sealing wax for electrical purposes manufacturers, 9, Rose-street, Newgate-street, London, E.C.

Digitized by Google

Watkins, Stephen, patent and design registration agent, 5, High-street, Wolverhampton.
Watson Anglo-Indian and General Telegram Agency, 27, Leadenhall-street, London, E.C.
Watson, Arch, & Co., brass founders, 36, George-street, Glasgow.
Watson, C., & Co., nickel merchants and smelters, 29, Great St. Helen's, London, E.C.
WATSON, H., & SON, brass and copper founders, 18, Abingdon-street, Westminster, London, S.W.
Watson, Wm., & Sons, opticians, 313, High Holborn, London, W.C.
Watson, Benjamin, leather driving band maker, 13, Charles-street, Blackfriars, London, S.E.
Watson, Henry, gas engineer, 39, High Bridge, Newcastle.
Watson, Henry, brass founder, 39, High Bridge, Newcastle.
Watson, John, brass founder, Newgate-street, Morpeth.
Watson, J., iron tube manufacturer, 62, Birmingham-street, Oldbury.
Watson, Joseph Henry, electro gilder and plater, 50, St. Paul's-square, Birmingham.
Watson, Thomas, rope and twine maker, Palmerston-street, Bollington, Macclesfield.
Watson, T. H., electro gilder and plater, 18, Bath-street, Birmingham.
Watson, Thos. W., mathematical instrument maker, 4, Pall Mall, London, S.W.
Watson, W., electro gilder and plater, 59, Noble-street, Goswell-road, London, E.C.
Watson, W. H., Assay office, Leopold-street, Sheffield.
WATSON, WM. JAMES, wood engraver, East Temple Chambers, London, E.C.
Watt & Co., electro gilders and platers, 36, Clerkenwell-green, London, E.C.
Watt, Charles, & Co., electrolier manufacturers, 30, West George-street, Glasgow.
Watt, James, & Co., mechanical engineers, 90, Leadenhall-street, London, E.C.
Watts, J., & Co., iron founders, Soho Foundry, Soho, Birmingham.
Watt, John, draughtsman, 174, Cleveland-street, Birkenhead.
Watts & Lownds, metal merchants, Popham-street, Nottingham.
Watts & Nephew, metal merchants and dealers, 55 to 59, Allcock-street, Birmingham.
Watts & Tompkinson, earthenware manufacturers, High-street, Longton, Staffordshire.
Watts, Ch., mechanical engineer, 10, Pitt-street, Southwark, London, S.E.
Watts, C. F., electrotyper, 21, Paternoster-square, London, E.C.
Watts, Edmund Richard, mathematical instrument maker, 123, Camberwell-road, London, S.E.
Watts, Martin, brass founder, Catharine-street, Macclesfield.
Wauthier, J., scientific glass blower, 53, Red Lion Street, Clerkenwell, London, W.C.
Waverly Oil & Chemical Co., manufacturing chemists, 44, South Portland-street, Glasgow.
Waygood, R., & Co., mechanical engineers, Falmouth-road, Great Dover-street, London, S.E.
Wayte, Chas., charcoal maker & dealer, 571, Old Kent-road, London, S.E.
W. B. Lead Office, lead manufacturers, 46, Northumberland-street, Newcastle-on-Tyne.
Wearing Bros., brass founders, 132, Holloway-bank, Wednesbury.
Wearing, M., & Son, brass foundry, The Bridge, Wednesbury.
Wearing, Geo., brass founder, Carter's-green Foundry, West Bromwich, Birmingham.
Wearing, J., brass founder, Alma-street, Mesby-croft, Wednesbury.
Webb Bros., mechanical engineers, 7, Portland-street, Wardour-street, London, W.
Webb, Aldridge, and Co., copper merchants, Marsh-street, Bristol.
Webb, D., & Co., tinfoil manufacturers, 17, Johnson's-court, Fleet-street, London, E.C.
Webb & Son, leather driving band makers, 11, Leadenhall-street, London, E.C.
WEBB, B. W., electrician, 22, Harrington-square, London, N.W.
Webb, Fred., electric bell fitter, 45, High street, Leicester.
Webb, H., tallow merchant, Weston-street, Devon's-road, Bromley, London, E.
Webb, Henry Thos., tinfoil manufacturer, 2, St. Bride's-avenue, London, E.C.
Webb, M., mining engineer, Brownhills, Walsall.
Webb, William, electro gilder and plater, 40, Howard-street, Birmingham.
Webber, Lieut.-Col., C.E., electrician, Alvercliffe, Gosport, Hants.
Weber, P. E., & Co., lamp-post manufacturers, 77, St. Anne-street, Liverpool.
Webster Bros., opticians, 4 Porchester-road, Bayswater, London, W.
Webster & Horsfall, wire manufacturers (Thomas George Richardson, manager), Kilamarah, Chesterfield.
Webster, G. E., patent agent, Central-chambers, Market-street, Nottingham.
Webster, J., brass finisher, Traffic-street, Derby.
Webster, E. electric bell fitter, 96, Station-street, Burton-on-Trent.
Webster, E. A., electric bell manufacturer, 64, Lionel-street, Birmingham.
Wedekind, H., manganese merchant, 158, Fenchurch-street, London, E.C.
Wedge, E., galvaniser & galvanised iron manufacturer, 30, Stafford-st., Willenhall, nr. Wolverhampton.
Wedgwood & Co., earthenware manufacturers, Pinnox & Unicorn Works, Tunstall, Stafford.
Wedgwood, J., & Sons, earthenware manufacturers, Etruria Pottery, Etruria, Stoke-on-Trent.
Weeden, Wm., optician, 33, Camden-passage, Islington, London, N.
Weems, J. & W., mechanical engineers, 84, Cannon-street, London, E.C.
Weir, John, & Co, coppersmiths, 105, Elliot-street, Glasgow.
Welch, Francis B., & Co., pulley makers, Manchester-chambers, Manchester.

Digitized by Google

Welch, W. J., wood engraver, 25, Wellington-street, Strand, London, W.C.
Welch, W., electro gilder & plater, 34½, Great Hampton-street, Birmingham.
Weldless Steel Tube Co., iron tube makers, 303 & 304, Icknield Port-road, Birmingham.
Weller, W., electro gilder & plater, 38, Bond-street, Brighton.
Wellington Pottery, pottery manufacturers, Wesleyan-street, Glasgow.
Wells, T. & Co., electro plate manufacturers & dealers, 15½, Great Hampton-street, Birmingham.
Wells, G., lighthouse engineer, 12, North-street, Smith-square, Westminster, London, S.W.
Wells, J. & T., electro gilders & platers, 15, Great Hampton-street, Birmingham.
Wells, Lionel B., consulting engineer, Highfield, Castle Northwich, Northwich.
Wells Wire Quilting & Shoe Tip Co., wire workers & weavers, Oxenden-street, Leicester.
Werdermann, Rich., insulated wire manufacturer, 121, Bishopsgate-street Within, London, E.C.
Werdermann, R., telegraph submarine engineer, 13, Princes-street, Cavendish-square, London, W.
Werner & Koenig, steam packing makers, 23, Addle-street, London, E.C.
Wertheim, Louis, asbestos merchant, 63, Finsbury-pavement, London, E.C.
Wertheimer, Samson, bronzist, 154, New Bond-street, London, W.
WEST COAST OF AMERICA TELEGRAPH CO., LIMITED, 98, CANNON STREET, LONDON, E.C.
West India & Panama Telegrah Co., Limited, Dashwood House, 9, New Broad-street, London, E.C.
West London Wire Works, wire workers & weavers, 2, Allen's-court, Oxford-street, London, W.
West Middlesex Electric Lighting Co., limited; electric Light contractors, 14, King-street West, Hammersmith, London, W.
West of Scotland Electro Plate Co., electro plate manufacturers & dealers, 97, Bothwell-street, Glasgow.
West, H. G., & Co., mechanical engineers, 116 & 118, Southwark-bridge-road, London, S.E.
West, John George & Co., mathematical instrument makers, 92 & 93, Fleet-street, London, E.C.
West, M., & Co., electro gilders & platers, 3, Ludgate-hill, London, E.C.
West, Francis Linsell, optician, 31, Cockspur-street, Charing-cross, London, S.W.
West, Henry, optician, 73, Upper Kennington-lane, London, S.E.
Westbury, W. D., & Co., metal merchants & and dealers, 103, Pritchett-street, Birmingham.
Westby, Mrs. J., optician, 18, Humberstone-gate, Leicester.
Western & Brazilian Telegraph Co., Limited, 19, Great Winchester-street, London, E.C.
Western of Canada Oil Co., oil merchants, Pinner's Hall, Old Broad-street, London, E.C.
Western Chemical Co., manufacturing chemists, 202, Broomielaw, Glasgow.
Western & Co., engineers, 1, Broadway-chambers, Westminster, London, S.W.
Western & Co., mechanical engineers, 114, Belvedere-road, London, S.E.
Western Union Telegraph Co., lessees of the American Telegraph & Cable Co., 211 & 214, Gresham-house, Old Broad-street, E.C., and 21, Royal Exchange, London, E.C.
Westphalian Wood Screw Co., screw makers, 18, Finsbury-circus, London, E.C.
Westfalischer, Draht-Industrie Verein, telegraph wire manufacturers, 1, Metal Exchange-buildings, Whittington-avenue, London, E.C.
Westley, Fredk., optician, 27, Old Bond-street, London, W.
Westminster Electric Lamp & Dynamo Co., Limited, 3, Victoria-mansions, Victoria-st., London, S.W.
Weston Bros., reflector and shade manufacturers, 19, Cross-street, Hatton-garden, London, E.C.
WESTON, G., & CO., electricians, flexible tube makers, electric bells and alarms, 92, Mile-end-road, London, E.
Weston, Son & Co., lead smelters, 18, Peter-street, Bristol.
Weston, T. A., mechanical engineer, 169, Fleet-street, London, E.C.
Westwood, Baillie & Co., mechanical engineers, London-yard, Isle of Dogs, Poplar, London, E.
Westwood, Chas., platinum refiner, 2 and 3, St. Paul's-square, and 53, Great Hampton-st., Birmingham.
WESTWOOD, CHARLES, crucible manufacturer, 53, Great Hampton-street, Birmingham.
Westwood & Moore, flint glass manufacturer, Brierly-hill, Staffordshire.
Westwood, J. F., electro-gilder and plater, 62, Great King-street, Birmingham.
Westwood, William, brazier, Ickfield-square, and 337, Monument-road, Birmingham.
Wheal Emma Tin & Copper Mine, Buckfastleigh, Devon.
Wheatcroft, J. W. barytes maker, Cromford, Derby.
Wheaton & Bennett, electro-plate manufacturers and dealers, 104 to 108, Oxford-street, London, W.
Wheeldon, John, & Co., oil merchants, 26, Alma-street, Sheffield.
Wheeldon, John, & Co., india-rubber and gutta-percha warehouses, 15, High-street, Sheffield.
Wheeler, Edmund, optician, 48, Tollington-road, Holloway, London, N.
Wheeler, G., electro-plate and nickel silver spoon and fork manufacturer, 33, Harford-street, Birmingham.
Wheeler, J., zinc worker, 315, Soho-road, Handsworth.
Wheeler, John Jackson, glass blower, 189, Fulham-road, London, S.W.
Whenmouth, G. C., brass manufacturer, 36, South-street, Lambeth, London, S.E.
Whetton, D. W., & Sons, opticians, 3 and 4, New-street, Sutton-in-Ashfield.
Whitaker, Mrs., electro-plate and nickel silver spoon and fork manufacturer, Middlebrook, Snaith, Selby, Yorks.

Digitized by Google

Whitcomb, T., & Son, electro-gilders and platers, 69, Northwood-street, Birmingham.
White & Co., mathmetical instrument makers, 144, Broomielaw, Glasgow.
White & Hawkin, electro-gilders and platers, 15 and 16, Legge-lane, and 95, Albion-street, Birmingham.
White, J., & Co., compass adjusters in iron vessels, 144, Broomielaw, Glasgow.
White, J., & Co., brass founders, 30, Pershore-street, Birmingham.
White, John H., & Co., leather driving-band makers, 12, Burdett-road, London, E.
White, John, & Sons, leather driving-band makers, Park-road Leather-works, Bingley, Yorkshire.
White, J. & J., manufacturing chemists, 7, West George-street, Glasgow.
White, Sons & Co., electro-platers, 5, Morrison's-court, Glasgow.
White, Wm. Jas., & Co., stoneware drain pipe manufacturers, L. & N. W. Railway, Worship-street, London, E.C.
White, H., optician, 1, Court, Hermitage-street, Sheffield.
White, Henry William, wood engraver, 14, Carthusian-street, London, E.C.
White, Jas., optician, 241, Sauchiehall-street, Glasgow.
White, Jas., composition maker, &c., 28, Stepney-green, London, E.
White, John Hutchinson, steam packing maker, 12, Burdett-road, London. E.
White, T., electro-plate manufacturer and dealer, 133, New Bond-street, London, W.
White, Thomas, screw manufacturer, Thorpe Hesley, Rotherham.
White, Thomas, metal merchant, Park-place, South-end, Croydon, Surrey.
White, William Henry, chemical manufacturer, Westmoor, Long Belton, Newcastle.
Whitecross Wire & Iron Co., (J. Abercrombie, Agent), steel manufacturers, 2, King William-street, London, E.C.
Whitecross Wire & Iron Company, Limited, iron wire manufacturers, 66, Queen-street, London, E.C.
Whitehead, R. R., & Bros., leather driving-band makers, 10, Endell-street, London, W.C.
Whitehead & Co., electric bell manufacturers, 54, St. Enoch-street, Glasgow.
Whitehead, Wm. G., & Son, electric bell fitters, 15, College-street, Glasgow.
Whitehouse & Co., galvanizers, 13, Crutched-friars, Mark-lane, London, E.C.
Whitehouse & Co., lubricator manufacturers, Tipton Hall Chain Works, Staffordshire.
WHITEHOUSE & CO., electrolier manufacturers, 1, Carver-street, Birmingham.
Whitehouse & Co., iron telegraph pole manufacturers, Globe Tube Works, Wednesbury.
Whitehouse, G., & Co., electro-plate manufacturers and dealers, 24, Exeter-row, Birmingham.
Whitehouse, F., electro-plate maker, Lion Works, Marstone-lane, Birmingham.
Whitehouse, George, brass founder, Barford-street, Birmingham.
Whitehouse, J., mining engineer, Burnt Tree, Dudley.
Whitehouse, J., steam engine boiler maker, Rutland-street, Ilkestone.
Whitehouse, J., hinge maker, Wolverhampton.
Whitehouse, Joseph, optician, 37, Warwick-street, Belgrave-road, Pimlico, London, S.W.
Whitehouse, John, optician, 8, Coventry-street, Haymarket, London, W.
Whitehouse, W. E., refiner, 28, Richard-street, Vise-street, Birmingham.
Whitehouse, W. H., mining engineer, 27, Lichfield-street, Walsall.
Whiteley, Eli, & Co., wire drawers, River-street, Rochdale, Lancashire.
Whiteley, B., wire weaver, 35, Bridgewater-street, Salford, Manchester.
Whiteley, Joshua, leather driving band maker. J. Abercrombie, Agent, King William-street, London, E.C.
Whiteley, William, electrolier lamp and lustre manufacturer, 31, 55 and 61, Westbourne-grove, London, W.
WHITELAWS, D., telegraph code cipher, 79½, Gracechurch-street, London, E.C.
Whitesmith, J., & Sons, mechanical engineers, 11, Queen Victoria-street, London, E.C.
Whiteside, J., & Sons, machinery belt makers, 31, Moir-street, Glasgow.
Whitfield, Charles John, rivet manufacturer, 55, Charlotte-street, Birmingham.
WHITFIELD, JAMES, brass founders, 38 and 39, Oxford-street, Birmingham.
Whitfield, Wm., & Co., bolt and nut manufacturers, Royal Iron Works, Limehouse, London, E.
WHITING, HENRY G., A.P.S. and M.S.A., magnetic curative appliance manufacturer, medical electrician of over 30 years experience, 11, Poultry, and Queen Victoria-street, London, E.C.
Whitley Partners, Limited, telegraph contractors, Hunslet-road, Leeds.
Whitmee, J., & Co., mechanical engineers, 72, St. John-street, London, E.C.
Whitmore, & Binyon, mechanical engineers, 28, Mark-lane, London, E.C.
Whitmore, J., electrolier manufacturer, 40, Wellington-street, Leicester.
Whittington, William, & Co., rivet manufacturers, Scotland-street, Birmingham.
Whittingham, Ford & Riley, earthenware manufacturers, Newcastle-street, Burslem, Stafford.
Whitton, H., steel manufacturer, 45, Washford-road, Attercliffe, Sheffield.
Whitworth, Sir Joseph, & Co., mechanical engineers, 24, Gt. George-street, London, S.W.
Whyte & Co., chemical, mathematical and philosophical instrument makers, 144, Broomielaw, Glasgow.
Whyte & Kerr, lamp post manufacturers, Mary-hill, Glasgow.
Whyte, Jas., telegraph instrument maker, 241, Sauchiehall-street, Glasgow.
Wich, Fredk., & Co., bronzists, 8 and 10, Great Titchfield-street, London, W.

Digitized by Google

Wickens, Samuel, & Co., melters, Glaucus-street, Bow-common, London, E.
Widdowson, T., & Co., wire drawers, Fitzroy Works, Bright-street, Attercliffe, Sheffield.
Widgery, Wm. Jas., gas fitter, 44, Sherlock-street, Birmingham.
Wigg Bros., & Steele, Old Quay Copper and Alkali Works, Runcorn.
Wigg, W. H., & Co., turbine and water wheel makers, South Green Works, East Dereham, Norfolk.
Wiggin, H., & Co., nickel refiners, 55, George-street, Parade, Birmingham.
Wiggin, H., & Co., wire drawers, 28, Change-alley, Sheffield.
Wiggins, F., & Sons, ships' compass makers, 10, King-street, Tower-hill, London, E.
Wiggins & Rihll, electrolier lamp and lustre manufacturers, 157, Fenchurch-street, London, E.C.
Wigner & Harland, F.C.S., F.I.C., analytical chemists, 79, Great Tower-street, London, E.C.
Wigner & Harland, electric engineers, 37, Lombard-street, London, E.C.
Wigzell, E. E., mechanical engineer, 37, Walbrook, London, E.C.
Wilcock, Mark, leather driving band maker, Sowerby Bridge, Yorkshire.
Wild, Augustus, & Co., machine strap makers, 51, Great Dover-street, London, S.E.
Wild & Bradwell, silk spinners, Forge Mills, Crowledge, Congleton.
Wild, James, & Frederick Chas., steel manufacturers, Borussia Works, Jericho-street, Sheffield.
Wild & Wessel, electrolier lamp and lustre manufacturers, 20, Little Trinity-lane, London, E.C.
Wild, William, brass founder, Neepsend Brass Works and Liverpool-street, Attercliffe, Sheffield.
Wild, Wm. Alfred, optician, Havelock Works, Walker-street, Sheffield.
WILDE HENRY, electrical engineer, 37, Mill-street, Ancoats, Manchester.
Wilding, W., electro-gilder and plater, 72, Vyse-street, Birmingham.
Wildman, G. C., electro-plate and nickel-silver spoon and fork manufacturer, Penn Works, Raglan-street, Wolverhampton.
Wileman, J. F., earthenware manufacturer, Foley Works, Fenton Culvert, Stoke-on-Trent.
Wilkes, J., Mapplebeek & Co., brass and copper tube makers, 9, New Broad-street, London, E.C.
Wilkes, John & Sons, tube makers, 9, New Broad-street, London, E.C.
Wilkes, J., & Sons, telegraph wire manufacturers, Liverpool-street, Birmingham.
Wilks, T., drain pipe manufacturer, Upper Brailes, Shepston-on-Stour.
Wilkins, W., & Co., dioptric lighthouse apparatus manufacturers, 24, Long-acre, London, W.C.
Wilkins & Wright, electrolier chain manufacturers, 58, Graham-street, Birmingham.
Wilkinson, H., & Co., Limited, electro-plate manufacturers and dealers, 20, Norfolk-street, Sheffield.
Wilkinson, James, & Son, manufacturing chemists, Tinsley Park-road, Attercliffe, Sheffield.
Wilkinson, John, & Sons, rolling mills and rolled metal manufacturers, Adderley Park-road, Saltley, and Branston-street, Saltley, Birmingham.
Wilkinson, T., & Sons, electro-gilders and platers, 16, Holborn-viaduct, London, E.C.
Wilkinson, T., & Sons, electro-plated ware manufacturers, 45 and 46, Great Hampton-street, B'ham.
Wilkinson, Henry, hinge maker, 17, Clerkenwell-green, London, E.C.
Wilkinson, J., optician, 44, Gallowtree-gate, Leicester.
Wilkinson, S., wire drawer, 34, Harford-street, Birmingham.
Wilkinson, T., chemical manufacturer, 24, Newgate-street, Newcastle.
Wilkinson, Wm., rolling mills and rolled metal manufacturer, Soho Rolling Mills, Heath-street South, Spring-hill, Birmingham.
Wilks & Hawksley, steel manufacturers, Pond-hill, Sheffield.
Wilks, Charles, electro-gilder and plater, 16, Mott-street, Birmingham.
Wilks, James, brass founder, 28, Great Hampton-street, Birmingham.
Willard, C., & Son, electric light engineers, 85, Hoxton-street, London, N.
WILLARD, F. L., electrician, 25, Richmond-street, St. Luke's, London, E.C.
WILLCOX, W. H., & CO., manufacturers of oil "specially" for electric machinery and gas engines, 36, Southwark-street, London, S.E.
Willett & Beal, mechanical engineers, 632, Old Kent-road, London, S.E.
Williams Bros. & Co., tube makers, 7, Pershore-street and River-street, Deritend, Birmingham.
Williams, Charles & Co., iron founders, Ferry Iron Works, Wharf-road, Cubitt Town, London, E.
Williams & Bach, oil merchants, 92, New Bond-street, London, W.
Williams & Co., Limited, mechanical engineers, Wick-lane, Old Ford-road, Bow, London, E.
Williams, C., & Co., mechanical engineers, 3, Broad-street-buildings, Liverpool-street, London, E.C.
Williams, Charles, & Co., engineers, Ferry Iron Works, Wharf-road, Cubitt Town, London, E.
Williams, D., & Son, lightning conductor manufacturers, Frodsham-street, Chester.
Williams, Foster & Co., copper companies and merchants, 57, Gracechurch-street, London, E.C.
Williams & Ferguson, stoneware drain-pipe manufacturers, 10, South Wharf, Paddington-basin, London, W.
Williams & Fowler, electro gilders and platers, 13, Mary-street, Caroline-street, Birmingham.
Williams, Harvey & Co., tin merchants, 26, Upper Thames-street, London, E.C.
Williams, J., & Co., electro-plate manufacturers and dealers, St. Augustine's-parade, Bristol.
William & Mitchell, copper merchants, Middle-avenue, Queen-square, Bristol.
Williams' Railway Patent Company, Limited, lamp post manufacturers, Glasgow.

Digitized by Google

Williams, R. H., & Sons, mechanical engineers, South Bermondsey Railway Station, London, S.E.
Williams, W., & Sons, electrolier lamp manufacturers, Deritend, Birmingham.
Williams, Alfred, gas pipe maker, 64, Bankside, London, S.E.
Williams, Edmund, glass blower, 79, Fairfoot-road, Bow, London, E.
Williams, E., metal merchant, Rinton, Upper Gornal, Dudley.
Williams, Francis, oil merchant, 282, Broad-street, Birmingham.
Williams, Frederick, wood engraver, 17, Holborn-viaduct, London, E.C.
Williams, Joseph, metal merchant and dealer, Blakeland-street, Little Bromwich, Birmingham.
Williams, John, consulting engineer, Crewe.
Williams, J., mining engineer, Brickhills, Walsall.
Williams, William, copper smelter and refiner, Thistle-street, Hebburn New Town, Newcastle-on-Tyne.
Williams, William, metal merchant and dealer, 37, Bordesley-green, Birmingham.
Williamson Bros., turbine and water wheel makers, Canal Iron Works, Kendal.
Williamson, J. C., & Co., manganese merchants, Exchange-buildings, Quayside, Newcastle-on-Tyne.
Williamson, A. C., pottery manufacturer, Wellington Pottery, 50, Wesleyan-street, Glasgow.
Williamson, J. H., manufacturing chemist, Golden Hill, Stoke-on-Trent.
Williamson, Thomas, valve manufacturer, Atlas Works, Stalybridge.
Williamson, W., mechanical engineer, 133, High Holborn, London, W.C.
Willing & Co., electric signs, 366, Gray's-inn-road, London, W.C.
Willington, Mrs. Harriett, electro-plate manufacturer and dealer, 67, Spencer-street, Birmingham.
Willis, John & Co., steel manufacturers, Park-side Steel Works, Sussex-street, Sheffield.
Willis, Edmund, melter, 16, 17 and 18, Peter-street, Soho, London, W.
Willis, W. C., steel manufacturer and merchant, 4, North-court, Royal Exchange, Glasgow.
Willis, William Dalrymple, wood engraver, 123, Chancery-lane, London, W.C.
Willmore Bros., electrolier lamp makers and dealers, 140, Brompton-road, London, S.W.
Willmott, Albert, electro-plater, 30½, Northwood-street, Birmingham.
Wills William, tool maker (punches for pliers), 34 (back of), Aston-street, Birmingham.
Willsher & Co., steam engine makers, 2, Pancras-lane, Queen Victoria-street, London, E.C.
Willsher & Co., mechanical engineers, 40, Gracechurch-street, London, E.C.
WILSON, A. & CO., engine, pump, boiler, and tank manufacturers, machinists, &c., Vauxhall Iron Works, Wandsworth-road, London, S.W.
Wilson & Blessley, coppersmiths and braziers, 1, Paul-street, Finsbury, London, E.C.
Wilson & Co., glass manufacturers and merchants, 11, Maxwell-street, Glasgow.
Wilson's Combined Low Water Steam Safety Alarm Company, Limited, boiler non-conducting composition makers, 49 and 50, Palace-chambers, Bridge-street, London, S.W.
Wilson & Davis, electro-plate manufacturers and dealers, 10, Hatton-garden, London, E.C.
Wilson, Duncan & Co., machine belt makers, 90, James-street, Greenhead, Glasgow.
Wilson, G. L., & Co., lead merchants, High-road, Tottenham, Middlesex.
Wilson-Hawsworth, Ellison & Co., wire drawers, Carlisle-street, Sheffield.
Wilson, Henry, & Co., brass founders, Phœnix Works, Stockton-on-Tees.
Wilson, J. C., & Co., electrolier fitters, 99, Portugal-street, Glasgow.
Wilson, John H., & Co., iron tank manufacturers, 110, Cannon-street, London, E.C.
Wilson, John, & Sons, manufacturing chemists, 29, Bath-street, Glasgow.
Wilson, James, & Sons, tube makers, Coatbridge.
Wilson & Shaw, iron founders, Eagle Foundry, Baldwin-street, Attercliffe, Sheffield.
Wilson, William, & Alex., steam engine packing manufacturers, 116, James-street, Bridgeton Cross, Glasgow.
Wilson, William, & Co., electrolier and chandelier manufacturers, 50, 52, and 54, King-street, Manchester.
Wilson, W., & Sons, drain pipe manufacturers, Accrington, Tamworth.
Wilson, William, & Alex., bolt and nut makers, 156, James-street, Bridgeton Cross, Glasgow.
Wilson, A., steam engine boiler maker, Vauxhall Iron Works, Wandsworth-road, London, S.W.
WILSON, ALFRED E., lead, copper, zinc, tin, asbestos, and bismuth merchant, 102B, Great Charles-street, Birmingham.
Wilson, J., electro-plate manufacturer and dealer, 26, Hall-street, Birmingham.
Wilson, John, tube maker, 20, Buchanan-street, Glasgow.
Wilson, J. C., mechanical engineer, 5, Westminster-chambers, London, S.W.
WILSON, J. S., turbine and water motor maker, 99, Portugal-street, Glasgow.
Wilson, James Thompson, chemical manufacturer, Spital, Berwick-on-Tweed.
Wilson, Robert, optician, 15, Merchant-street, Bow-road, London, E.
Wilson, Thomas, optician, 4, Belvoir-street, Leicester.
Wilson, William, electric bell fitter, 435, Park-road, Hockley, Birmingham.
Windas & Dunsmore, mechanical engineers, Crew-street, West Ferry-road, Millwall, London, E.
Winder Brothers, ironfounders, Royd-works, Tinsley-road, Sheffield.

Digitized by Google

Winder & Harrop, Copper merchants, Albion-street, Gaythorn, Manchester.
Winder, J. B., manufacturing chemist, Eyre-street, Birmingham.
Windle & Blyth, earthenware manufacturers, Birmingham-road, Walsall, Stafford.
WINFIELD, ROBERT WALTER, & Co., electrolier manufacturers, Cambridge-street-works, B'ham. and Holborn Viaduct, London, E.C.—Gold medal (Rappel) Paris Exhibition, 1878.
Wingrove, George, tool handle maker, Victoria-works, River-street, Deritend, and 85, Floodgate-street, Birmingham.
Winkworth, G. E., lead merchant, 62, Crogsland-road, Kentish Town, London, N.W.
Winn, Charles, & Co., lead merchants, 140, Granville-street, Birmingham.
Winn & Co., mechanical engineers, 54, King William-street, London, E.C.
Winter, J., & Co., gutta percha manufacturers and dealers, 1, Park-side, Knightsbridge, London, S.W.
WINTER, F., ebonite manufacturer, 138, London Wall, London, E.C.
Winter, John, glass blower, Belle Isle, York-road, London, N.
Winterbottom & March, wire drawers, Dearne Wire-mills, Barnsley, Yorkshire.
Winters, G., model maker, 41, Marmaduke-street, Hull.
Wise, Edward, optician, 554, Old Ford-road, Bow, London, E.
Wise, William Lloyd, patent and design registration agent, 46, Lincoln's-inn-fields, London, W.C.
Wiseman, J., electro-plate manufacturer and dealer, 87½, Branston-street, Birmingham.
Wish, G., electro-plate manufacturer and dealer, Norfolk-lane, Sheffield.
Withey, John, electric bell fitter, 15, Hoxton-street, London, N.
Withrod, Son, & Co., electro gilders and platers, 55, Berwick-street, Soho, London, W.
Witte & Kemper, galvanised iron and wire manufacturers. Muller, Uhlick, & Co., agents, 37, King William-street, London, E.C.
WITTY & WYATT, asbestos manufacturers and driving band makers, Billiter-house, Billiter-street, London, E.C.
Wodicka, J., electro-gilder and plater, 2, Charles-street, Curtain-road, London, E.C.
Wolff, R., & Co., manganese merchants, 9, Fenchurch-street, London, E.C.
WOLTERS, OTTO, balance maker, 55, Upper Marylebone-street, London, W.
Wolstenholme, Joseph, & Co., file manufacturers, Middlesex-works, Newcastle-street, Sheffield.
Wolstenholme, Charles James, electro-plated ware manufacturer, 70, Navigation-street, Birmingham.
Wolverhampton Corrugated Iron Co., galvanizers, 63, Bishopsgate-street-within, London, E.C.
Wood, Alex., & Son, coppersmiths, 14 and 18, Stockwell-street, Glasgow.
Wood, J., & Brothers, wire drawers, Grove-mills, Brighouse.
Wood, J., & Sons, wire drawers, Wilkin Royd Mills, Brighouse.
Wood & Son, earthenware manufacturers, Tent-pottery, Furlong-lane, Burslem, Stafford.
Wood & Sons, electro-platers, 188, Warstone-lane, Birmingham.
Wood, William C., & Sons, crucible makers, Lambhill-street, Plantation, Glasgow.
Wood, Charles Henry, analytical chemist, 7, Union-court, Old Broad-street, London, E.C.
Wood, Edward George, optician, 74, Cheapside, London, E.C.
Wood, George, steel manufacturer, Owlerton, Sheffield.
Wood, Henry Joseph, optician, 185, Oxford-street, London, W.
Wood, James, chronometer maker, 49, Renfield-street, Glasgow.
Wood, John, Wisewood forge & rolling mills, Wisewood, Sheffield; & at Oughtibridge steel-works, Sheffield.
Wood, Thomas George William, oil merchant, 70, Bishopsgate-street-within, London, E.C.
Wood, W., wire drawer, Little John-mill, Clifton-bridge, Brighouse.
Woodall & Son, glass merchants (of St. George's Glass-works, Birmingham), 82, Norfolk-street, Sheffield. Robert Asquith, agent.
Woodall, Mrs. M., electro-gilder and plater, 15, Lower Castle-street, Bristol.
Woodall, Samuel, iron tank manufacturer, 84, Cannon-street, London, E.C.
Woodall, Samuel, steam engine boiler manufacturer, Victoria-buildings, Corporation-street, Birmingham.
Woodfield, Frank, & Co., composition makers, 106, Fenchurch-street, E.C., and Morrison's-buildings, Commercial-road-east, London, E.
Woodhead, J., wire drawer, 8, Elland-road, Brighouse.
Woodhead, Joseph, meteorological instrument maker, 63, Northampton-road, Clerkenwell, London, E.C.
WOODHOUSE & RAWSON, electricians, electrical engineers, and general suppliers of electrical requisites, 11, Queen Victoria-street, London, E.C.; and at Belfast.
Woodward, H., & Co., electro-gilders and platers, 21, Paradise-street, Birmingham.
Woodward, George, glass globe maker, 5, Charles-street, Hatton-garden, London, E.C.
Woodward, J., earthenware manufacturer, Swadlincote, Burton-on-Trent.
Woodward, Joseph, electrotyper, stereotyper, and india rubber stamp maker, 20, Exeter-row, B'ham.
Woolfson, Theodoro Green De, optician, 3, Holles-street, Cavendish-square, London, W.
Woollerton, T., electrolier manufacturer, 81, High-street, Leicester.
Woolley, T., electro-plate manufacturer and dealer, 18, Caroline-street, Birmingham.
Woolley, Thomas, optician, 55, Bride-street-row, Chester.
Wooton, Samuel, & Co., air-tight glass case makers, 72 and 73, Myddleton-street, London, E.C.

Digitized by Google

Wordsworth, George, & Sons, wire drawers, New Wire-mill, Thurgoland, Sheffield.
Wordsworth, J., & Sons, wire drawers, Owlerton, Sheffield.
Wordsworth, J. W., & Co., wire drawers, Oxspring, Penistone, Sheffield.
Workman, John, & Son, manufacturing chemists, 35, Duke-street, Glasgow.
Worrall, Hallam, & Co., wire drawers, Needle-works, Warren-street, Attercliffe-road, Sheffield.
Worringham, T. Henry, & Co., grease manufacturers, Black-horse-road, Deptford, London, S.E.
Worssam, G. J., & Son, mechanical engineers, Wenlock-road, City-road, London, N.
Worssam, Samuel, & Co., machinists, Oakley-works, King's-road, Chelsea, London, S.W.
Worthington & Son, earthenware manufacturers, Bross-street, Hanley, Stafford.
Wortley, John, file manufacturers, 64, John-street, Sheffield.
Wotherspoon, James, & Son, asbestos manufacturers and mine owners, 97, Wellington-street, Glasgow.
Wragg, T., & Sons, drain pipe makers, Hill Top Fireclay Works, Swadlicote, Burton-on-Trent.
Wragg, Thomas, & Sons, stoneware drain pipe manufacturers, 10, Beaufort-buildings, Strand, London, W.C.
Wragg, George, jun., ironfounder, Clough-street, Masbro', Rotherham.
Wratten, James Thomas, melter, 229, Old Ford-road, Bow, London, E.
Wrench, John, & Son, opticians, 39, Gray's-inn-road, London, W.C.
Wright Brothers, brass founders, Havelock-street, Leicester.
Wright & Butler, electrolier lamp and lustre manufacturers, 68, Commercial-street, London, E.
Wright & Co., governor makers, and Grafton Jones' steam engine governor makers, 132, Upper Thames-street, London, E.C.
Wright & Co., magnetic curative appliance manufacturers, 188, Wardour-street, Soho, London, W.
Wright & Fletcher, electrolier lamp and lustre manufacturers, 1 & 2, Australian-avenue, London, E.C.
Wright, George, & Co., ironfounders, Burton Weir, Brinsworth-street, Masbro', Rotherham.
Wright, J. & E., cotton waste merchants, 7, Leadenhall-street, London, E.C.
Wright, J. & E., telegraph wire manufacturers, Universe Works, Garrison-street, Birmingham.
Wright, John, & Co., electrolier, lamp and lustre manufacturers, 1, Little Bush-lane, London, E.C.
Wright, John, & Co., gas engine manufacturers, sole agents for Crossley's Otto silent gas engines for Birmingham and district, 71, Broad-street, Birmingham.
Wright, P., & Sons, wire drawers, Broadwell Forge, Oldbury.
Wright, Robert Alfred, & Co., lubricator manufacturers, 178, High-street, Homerton, London, E
Wright, T., & Co., mechanical engineers, 54, New Broad-street, London, E.C.
Wright, W. B., & Co., galvanizers, and galvanized iron wire manufacturers, St. Philip's Marsh, Bristol.
Wright, Charles F., gauge maker, 79 and 80, Ashted row, Birmingham.
Wright, E., earthenware manufacturer, Wheat Bridge Pottery, New Brampton, Chesterfield.
Wright, Henry, steel merchant, Garden-street, Mexborough, Rotherham.
WRIGHT, HERBERT H., electrolier chandelier manufacturer, Hospital-street works, Birmingham.
Wright, J. R., steam boiler solution maker, 19, Edgar-rise, Peas-hill-road, Nottingham.
Wright, J. R., jun., wire drawer, Steel Works, Leadmill-street, Rivelin, Sheffield.
Wrigley, T., C.E., patent agent, 75, Chancery-lane, London, W.C.
Wurr, H., & Co., gas engine makers, 3, Bloomfield-street, London-wall, London, E.C.
Wurr & Lewis, mechanical engineers, 11, Laurence Pountney-lane, London, E.C.
Württemberg, Wollfil Manufactur Giengen, felt makers, 81, Queen Victoria-st., London, E.C. (Hund Bros.)
Wyall, W., cotton driving band maker, New Mills, Stockport.
Wyatt, Thomas, electrolier lamp and lustre manufacturer, 11, Neat-street, Long-acre, London, W.C.
Wyld, James, glass globe maker, 2, Royal Exchange, London, E.C.
Wylie, A. C., & Co., mechanical engineers, 84, Cannon-street, London, E.C.
Wyllie, Cross & Co., wire drawers, 41, York-street, Glasgow.
Wymper, J. W., & Edward, wood engravers, Lambeth-road, London, S.E.
Wynn, W. & C., & Co., tool makers, Commercial-street, Birmingham.
Wynne, R. H., mining engineer, Stanley villa, Regent-street, Stoke-on-Trent.

Y.

Yardley, S., & Sons, air-tight glass case makers, 25, Mountpleasant, Clerkenwell, London, E.C.
Yardley, Thomas, electric bell fitter, 98, Hampton-street, Birmingham.
Yarrow & Co., mechanical engineers, Isle of Dogs, Poplar, London, E.
Yates, Haywood, & Co., ironfounders, Rotherham Foundry Co., Limited, Effingham Works, George-street, Masbro', Rotherham.
Yates, John, & Sons, electro plated ware manufacturers, 56, Pritchett-street, Birmingham.
Yates, Wm., & John, steam engine makers, Canal Foundry, Blackburn.
Yates, John, iron founder, 5 and 6, Digby-street, Aston-road, Birmingham.
Yearron, H., second-hand machine dealer and electrical sundryman, 353, Old Kent-road, London, S.E

Digitized by Google

Yeomans & Eadon, steel manufacturers, High Bridge forge, Owlerton, Sheffield.
York Engineering Co., Limited, boiler non-conducting composition makers, 89 and 90, Palace-chambers, Bridge-street, London, S.W.
Yorkshire (Brush) Electric Light and Power Co., Limited, 11, Queen Victoria-street, London, E.C.
Yorkshire Engine Co., mechanical engineers, 26, Parliament-street, London, S.W.
Young & Co., electrolier lamp manufacturers, 20, Vaughton-street-south, Birmingham.
Young, B., & Co., oil merchants, Amelia-row, Spa-road, London, S.E.
Young & Buos, electric bell manufacturers, 18, Blandford-street, London, W.
Young, Dowson, & Co., brass and copper founders, 9, Fenchurch-street, London, E.C.
Young, E. G., & Co., oil merchants, Blackhorse-road, Deptford, London, S.E.
Young, H., & Co., mechanical engineers, Eccleston Iron Works, Pimlico, London, S.W.
Young, J., & T., boiler makers, Vul Foundry, Ayr, Glasgow.
Young, James, & Co., wire workers and weavers, 29, Judd-street, King's-cross, London, W.C.
Young, Robert, and Son, chemical, mathematical, and philosophical instrument makers, 59, Clyde-place, Glasgow.
Young & Strong, manufacturing chemists, 128, Ingram-street, Glasgow.
Young, T. A., & Son, steam engine boiler makers, Orchard-place, Blackwall, London, E.
Young, J., & T., steam engine boiler manufacturers, 235, Upper Thames-street, London, E.C.
Young, Charles, electric bell fitter, 177, Upper Thames-street, London, E.C.
Young, John, lead merchant, 321, Kennington-road, London, S.E.
Young, R., earthenware manufacturer, Hull Bank, Cottingham, Hull.
Young, W. Charles, F.C.S., F.I.C., analytical chemist, 117, Poplar High-street, London, E.
Younger, John, zinc manufacturer, 9, Centre-street, Glasgow.
Young's Paraffin, Light, and Mineral Oil Co., Limited, 7, West George-street, Glasgow.
Yuill, Robt. M., optician, 123, Canning-street, Glasgow.

Z.

Zambra, J., glass blower, 35, Sekforde-street, Clerkenwell, London, E.C.
Zamdra, W., electric bell fitter, Heaviley, Stockport.
Zanni & Co., electricians, 47, Holborn-viaduct, London, E.C.
Zanni, D., electrician, 21, Charles-street, Hatton-garden, London, E.C.
Zimdars, C. E., electric bell manufacturer, 327, Gray's-inn-road, London, W.C.
Zimmermann & Co., electrolier lamp and lustre manufacturers, 21, Red Lion-square, London, W.C.
Zuber & Rieder, & Co., telegraph paper makers, 3, Budge-row, London, E.C.
Zumbeck, August, & Co., chemical merchants, 21, Mincing-lane, London, E.C.

Digitized by Google

THE

ELECTRICAL REVIEW.

ESTABLISHED 1872.

Published every Saturday. *Price 4d.*

Subscription in GREAT BRITAIN (Postage Included) 19s. 6d. per Annum.

Office: 22, PATERNOSTER ROW.

THE ABOVE JOURNAL CONTAINS INFORMATION

ON

ELECTRIC LIGHT, TELEGRAPHY, TELEPHONY, AND ELECTRICAL ENGINEERING GENERALLY

OF THE MOST RECENT AND RELIABLE DESCRIPTION,

IN THE FORM OF

Leading and Technical articles, Original Communications from eminent men of Science, Proceedings of Societies, Notes, Correspondence, New Patents for each week, and Illustrated descriptions of New Inventions, Illustrated Abstracts of Published Specifications, City Notes, Reports, Meetings, Registration of New Electrical Companies, Official Returns of Electrical Companies, Quotations, Traffic Receipts, &c.

As a medium for Advertisements the ELECTRICAL REVIEW enjoys a very superior position, being the only independent Electrical Journal.

Digitized by Google

THE

Society of Telegraph Engineers & of Electricians.

ESTABLISHED 1871.

COUNCIL, 1883.

President:

LIEUT-COL. C. E. WEBBER, R.E.

Past Presidents:

CHARLES WILLIAM SIEMENS, F.R.S., D.C.L.—1872 and 1878.
FRANK IVES SCUDAMORE, C.B.—1873.
SIR WILLIAM THOMSON, LL.D., F.R.S.—1874.
LATIMER CLARK, M. Inst. C.E.—1875.
C. V. WALKER, F.R.S.—1876.
PROFESSOR ABEL, C.B., F.R.S.—1877.
LIEUTENANT-COLONEL J. U. BATEMAN-CHAMPAIN, R.E.—1879.
W. H. PREECE, F.R.S., M. Inst. C.E.—1880.
PROFESSOR G. C. FOSTER, F.R.S.—1881.

Vice-Presidents:

WILLOUGHBY SMITH.
PROFESSOR W. G. ADAMS, F.R.S.
C. E. SPAGNOLETTI, M. Inst. C.E.
PROFESSOR D. E. HUGHES, F.R.S.

Members:

W. S. ANDREWS.
WILLIAM T. ANSELL.
SIR CHARLES BRIGHT, M. Inst. C.E.
E. B. BRIGHT.
THE EARL OF CRAWFORD AND BALCARRES, F.R.S.
H. G. ERICHSEN.
H. C. FORDE, M. Inst. C.E.
MATTHEW GRAY.
JOHN FLETCHER MOULTON, F.R.S.
ALEXANDER SIEMENS.
AUGUSTUS STROH.
C. F. VARLEY, F.R.S.

Associates:

CAPTAIN J. T. BUCKNILL, R.E.
T. RUSSELL CRAMPTON, M. Inst. C.E.
CHARLES H. B. PATEY.

OFFICERS.

Auditors:

J. WAGSTAFF BLUNDELL, 12, Delahay-street, Westminster, S.W.

FREDERICK C. DANVERS, India Office.

Hon Treasurer.

EDWARD GRAVES.

Hon. Secretary.

LIEUT.-COLONEL FRANK BOLTON.

Hon. Solicitors:

MESSRS. WILSON, BRISTOWS & CARPMAEL, 1, Copthall Buildings, E.C.

Chairman of the Editing Committee: PROFESSOR W. E. AYRTON, F.R.S.

Librarian: ALFRED J. FROST.

Secretary: F. H. WEBB.

Bankers:

MESSRS. COCKS, BIDDULPH & Co., 43, Charing Cross, S.W.

Library and Offices of the Society: 4, The Sanctuary, Westminster, S.W.

Digitized by Google

LOCAL HONORARY SECRETARIES AND TREASURERS.

James Allen, Telegraph Superintendent Great Southern Railway, Buenos Ayres	ARGENTINE & ORIENTAL DEL URUGUAY.
Don Jose Aparicio, Representative of the Direct Spanish Telegraph Company, Calle de Fernando VI., Num° 1., Madrid	SPAIN.
John Aylmer, Civil Engineer, 4, Rue de Naples, Paris	FRANCE.
J. M. Collette, Engineer of the Netherlands Telegraphs, The Hague	The NETHERLANDS.
E. C. Cracknell. Superintendent of Telegraphs, Sydney	NEW SOUTH WALES.
James Dakers, Manager, Montreal Telegraph Company, Montreal	CANADA.
Le Commandeur E. D'Amico, Director-General of the Italian Telegraphs, Rome	ITALY.
Frederic Delarge, Engineer of the Belgian Telegraphs, Brussels	BELGIUM.
N. Ispolatoff, Director of Telegraphs, St. Petersburg	RUSSIA.
Charles Lemon, Ph. D. Superintendent of Telegraphs, Wellington	NEW ZEALAND.
C. L. Madsen, 49, Norre, Sogade, Copenhagen	DENMARK.
Samuel W. McGowan, Chief Inspector of Telegraphs and Postal Service, Melbourne	VICTORIA.
C. Nielsen, Director-General of the Norwegian Telegraphs, Christiania	NORWAY.
J. R. Preece, Indo-European Government Telegraphs, Shiraz	PERSIA.
E. Rosenbusch, A.M. Ins. C.E. Mediterranean Extension Telegraph Company, Valetta, Malta	MALTA & the MEDITERRANEAN.
Dr, Werner Siemens, 94, Markgrafen Strasse, Berlin	GERMANY.
James Sivewright, M.A., C.M.G., General Manager of Telegraphs, Cape of Good Hope	The CAPE AND SOUTH AFRICA.
F. G. Teale (Acting Local Hon. Sec. and Treasurer), Indian Government Telegraphs, Calcutta	INDIA.
Charles Todd, C.M.G., Director-General, South Australian Telegraphs, Adelaide	SOUTH AUSTRALIA.
G. G. Ward, General Superintendent of the Direct United States Cable Company, 16, Broad Street, New York	NORTH AMERICA.
William Warren. Superintendent in Tasmania of the Eastern Extension, Australasia, and China Telegraph Company, George Town	TASMANIA.

Digitized by Google

SOCIETY OF
Telegraph Engineers and of Electricians.

The Society of Telegraph Engineers was established in 1871, for the general advancement of Electrical and Telegraphic Science, and facilitating the exchange of information and ideas among those engaged in Electrical pursuits.

The Society consists of Members, Associates, Students, Foreign Members and Honorary Members.

The Officers are a President, four Vice-Presidents (elected annually), and twelve Members, who form a Council, three retire annually, also the usual officers as Secretary, Treasurer, &c.

Members subscription is two guineas, Associates one guinea, Foreign Members one pound, and Students half-a-guinea. Honorary Members do not subscribe. Subscriptions are payable in advance on January 1st in each year.

The Session of the Society commences about 1st November in each year and terminates about the 1st June.

Notice of time and place of meetings is given by the Secretary at commencement of the Session. The Officers and Council for the year are elected at the meeting just before Christmas in each year.

Those wishing to join the Society can obtain further and full particulars of the qualifications required and the necessary forms to be filled up of F. H. Webb, Esq., Secretary, 4, Broad Sanctuary, Westminster, London, S.W. Appended is a complete list of Officers and Members corrected to date:—

LIST OF MEMBERS,

CORRECTED UP TO DECEMBER 15TH, 1882.

† *Members who have served as Vice-Presidents.*
* *Members who have served on the Council.*

HONORARY MEMBERS.

Sir George Biddel Airy, K.C.B., D.C.L., LL.D., *late Astronomer Royal.*	The White House, Crooms-hill, Greenwich, S.E.
Ad. Cochery	Minister of Posts & Telegraphs, 101, Rue de Grenelle, Paris.
General Sir Edward Sabine, R.A., K.C.B., D.C.L., LL.D.	13, Ashley Place, Westminster, S.W.
Frank Ives Scudamore, C.B. .. .. *(Past President).*	British Post Office, Constantinople.
Professor Wilhelm Weber, F.R.S.	Göttingen.

Total number of Honorary Members 5

Digitized by Google

FOREIGN MEMBERS.

Alonso Prados, Don Julian	Director of Spanish Telegraphs, Madrid.
Alteneck, V. Von Hefner	94, Markgrafen Strasse, Berlin.
Amiot, Gustave	French Government Telegraph Department, Toulon.
Aparicio, Don Jose .. .. *(Honorary Secretary for Spain).*	Representative of the Direct Spanish Telegraph Co., Calle de Fernando VI., Num°. 1, Madrid.
Arantave, Don Enrique de	P.O. Box 170, New York.
Arisz, L.	Divisional Inspector of Netherlands Telegraphs, Utrecht.
Armengaud, Mons. Jeune	23, Boulevarde de Strasburg, Paris.
Atkins, George W. E.	Western Union Telegraph Co., 197, Broadway, New York.
Bachelor, Charles	Menlo Park, New Jersey, U.S.A.
Baldwin, William D.	25, Grant Place, Washington, D.C., U.S.A.
Banneux, Joseph	Belgian State Telegraph Department, Brussels.
Baron, H.	103, Rue de Grenelle, Paris.
Battle, Don José	Inspector-General of Telegraphs, Philippine Islands.
Bayol, Paul	L'Ecole Supérieure de Télégraphie, 103, Rue de Grenelle, Paris.
Bejar, Don Alejandro de	Director of Spanish Telegraphs, Carthagena, Spain.
Bergon, Louis M.	56, Rue de Madame, Paris.
Blavier, Edouard	103, Rue de Grenelle, Paris.
Bolton, Marco Antonio	Cia del Telegrafo, Trasandino, Valparaiso, Chili.
Bontemps, Charles	103, Rue de Grenelle, Paris.
Boomsma, A.	The Netherlands State Telegraph Office, Edam, Holland.
Bourne, C.	
Boyle, R. K.	63, Fulton Street, New York, U.S.A.
Braam, John A., de	27, Place de Madeleine, Paris.
Brandão, Dr. M. N.	Engenheiro Geral das Linhas do Norte, Rio de Janeiro, Brazil.
Bréguet, M., Sen.	39, Quai de l'Horloge, Paris.
Brieve, C.	Divisional Inspector of Netherlands Telegraphs, Roosendaal.
Brindisi, L.	Direction des Télégraphes Helleniques Athens.
Brix, Dr. Philipp W.	Engineer, Imperial Telegraphs, Berlin.
Brooks, David	22, South Twenty-first Street, Philadelphia, U.S.A.
Campos da Paz, M. V..	214, Praia de Botafogo, Rio de Janeiro, Brazil.
Campanema, Professor Dr.	Director-General of the Brazilian Telegraphs, Rio de Janeiro.
Careme, Felix	103, Rue de Grenelle, Paris.
Cardarelli, Fedele	Ispettore Telegrafico, Florence, Italy.
Collette, J. M. .. .. *(Honorary Secretary for the Netherlands).*	Engineer of the Netherlands Telegraphs, The Hague.
Comerma, Captain Andrés A.	82, Mortimer Street, Cavendish Square, W.
Coromina, Don Vicente	Director of Spanish Telegraphs, Madrid.
Courtenay, L. W.	45, Rue Cambon, Paris.
Cueli, Gavino R.	Ferro Carril de Buenos Ayres y Compana, Estacion Compana, Buenos Ayres.
D'Amico, M. le Commandeur E. .. .. *(Honorary Secretary for Italy).*	Director-General of the Italian Telegraphs, Rome.
Dehms, Dr. Fr.	Imperial Telegraphs, Constanz, Baden.
Delafield, A. Floyd	Noroton, Connecticut, U.S.A.
De La Precilla, Enrique	364, Florida, Buenos Ayres, c/o J. Livesay, Esq., 9, Victoria-chambers, Westminster, S.W.
Delarge, Frederic .. .. *(Honorary Secretary for Belgium).*	Engineer of the Belgian Telegraphs, Brussels.
De la Touanne, G.	103, Rue de Grenelle, Paris.
D'Infreville, George	408, West 43rd Street, New York, U.S.A.
Dwight, H. P.	General Superintendent, Montreal Telegraph Company, Toronto.
Eckert, Gen. Thomas T.	General Manager, Western Union Telegraph Co., 197, Broadway, New York, U.S.A.
Edison, Thomas A.	Menlo Park, New Jersey, U.S.A.
Eldik, R. K. van	Divisional Inspector of Netherlands Telegraphs, Venlo, The Netherlands.
Evers, I. C.	Inspector of Railway Telegraphs, Utrecht, The Netherlands.

Digitized by Google

Farmer, Professor Moses G.	U.S. Torpedo Station, Newport, R.I.
Fortun y Varona, Don Engenio	International Ocean Telegraph Co., Havannah, Cuba.
Frayssinier, J.	97, Boulevard Sébastopol, Paris.
Freeman, Frank L.	United States Patent Office, Washington, D.C., U.S.A.
Frühlich, Dr. Oscar	94, Markgrafen Strasse, Berlin.
Galante, Don José	Inspector of Spanish Telegraphs, Government Department, Seville.
Garay, Don Felix	Calle de Valencia, No. 324, Barcelona, Spain.
Gotendorf, Silvanus	
Gower, Frederic A.	Gower-Bell Telephone Company, 9, Great Winchester Street Buildings, E.C.
Grace, G. H.	Superintendent of Telegraphs, Central R.R. of N.J., Easton, Pa., U.S.A.
Gramaccini, Jules H. F.	Government Telegraph Department, Marseilles.
Gray, Elisha	Highland Park, Illinois, U.S.A.
Guilleaume, F. C.	Cologne, Rhenish Prussia.
Hamilton, George A.	Western Union Telegraph Company, 197, Broadway, New York, U.S.A.
Hasselt, A. van	Dutch East Indian Telegraphs, Batavia.
Hauff, P. P.	460, Pacific Street, Brooklyn, New York, U.S.A.
Hedemann, Mons. de	97, Avenue de Villiers, Paris.
Heinrichs, Charles F.	52, Woburn-place, Russell-square, W.C.
Helland, George T.	Great Northern Telegraph Company, Shanghai.
Hellings, M. L.	International Ocean Telegraph Company, Key West, Florida, U.S.A.
Henningsen, Jacob	Great Northern Telegraph Company, Foochow, China.
Hequet, A.	103, Rue de Grenelle, Paris.
Holst, F. I. C. M.	Great Northern Telegraph Company, Hong Kong.
Honcke, Captain Heinrich	Danish Royal Engineers, Copenhagen.
Hosklær, Colonel V.	Danish Royal Engineers, Copenhagen.
Hospitalier, Edouard	23, Rue d'Arcole, Paris.
Islas Bustamante, Don Saturnino	Ferro Carril Mexicano, City of Mexico, Mexico.
Isfolatoff, Nicholaus .. .. *(Honorary Secretary for Russia).*	Director of St. Petersburg Telegraphs, St. Petersburg.
Iturriaga, Don Enrique	Director of Spanish Telegraphs, Barquillo, 17, Madrid.
Jablochkoff, Paul	52, Rue de Naples, Paris.
Jager, T. de	Divisional Inspector of Netherlands Telegraphs, Leeuwarden, The Netherlands.
Jöhnke, Captain	Royal Danish Navy, Copenhagen.
Johnson, Edward H.	Edison's Electric Light Company, No. 65, Fifth Avenue, New York, U.S.A.
Jones, F. W.	Union Electric Manufacturing Company, 7 & 9, Bond Street, New York, U.S.A.
Jones, L. Bigelow	Electrician to the Amoskeag Manufacturing Company, Manchester, New Hampshire, U.S.A.
Kellogg, Milo G.	220, East Kinzie Street, Chicago, U.S.A.
Kolvig, F.	Great Northern Telegraph Company, Nagasaki.
Lacoine, Emile	Director of Telegraphs, Constantinople.
Ladd, George S.	President of the Gold and Stock Telegraph Company, San Francisco.
Lagarde, Joseph	103, Rue de Grenelle, Paris.
Lasard, Dr. Adolphe	German Union Telegraph Company, Werder Strasse, Berlin.
Lauritzen, S.	Great Northern Telegraph Company, Copenhagen.
Lemos Basto, J. M. de	18, Montague Place, Russell Square, W.C.
Lobit Don Luis	Sub-Director of Spanish Telegraphs, Madrid.
Lockwood, T. D.	American Bell Telephone Company, 95, Milk Street, Boston, Mass., U.S.A.
Lopez de Ochoa, Don Antonio	Inspector-General of Spanish Telegraphs, Madrid.
Lorentzen, Valdemar	Royal Danish Telegraphs, Copenhagen.

Digitized by Google

MADSEN, C. L.	49, Norre Sogade, Copenhagen.
(Honorary Secretary for Denmark.)	
Martial, A. de Saint	Secretary of the International Bureau, Berlin.
Maynard, G. C.	1413, G. Street, Washington, U.S.
Menier, Henri	7, Rue de Theâtre, Grenelle, Paris.
Mercadier, E.	21, Rue Descartes, Paris.
Meyer, B.	No. 1, Boulevard St. Denis, Paris.
Möller, C. A.	Great Northern Telegraph Company, Nystad (Finland).
Moerath, Chevalier G. N.	Piazza S. Claudio, 50, Rome.
Moncel, Count Theodore du	7, Rue de Hambourg, Paris.
Monnier, D.	57, Rue Pigalle, Paris.
Moore, George W.	North East Erie Co., Pennsylvania, U.S.A.
Mora, Don Francisco	Inspector of Spanish Telegraphs, Government Department, Madrid.
Mora, Don Orestes de	Director of Spanish Telegraphs, Government Department, Barcelona.
Mulvad, Carl	Royal Danish Telegraphs, Copenhagen.
Nagel, J. H.	Netherlands State Telegraph Office, Ardheim.
Navarra, W. S.	Telegraph Department, Teheran, Persia.
Niaudet, Alfred	6, Rue de Seine, Paris.
NIELSEN, C.	Director-General of the Norwegian Telegraphs, Christiania.
(Honorary Secretary for Norway.)	
Nielsen, F. C. C.	Great Northern Telegraph Company, Copenhagen.
Orduna, Don Carlos de	Rollo 2, Madrid.
Orduna, Don Emilio	Sub-Director of Spanish Telegraphs, Madrid.
Ortiz, Don Cristobal	Telegrafos del Gobierno Federal, City of Mexico, Mexico.
Pellegrino, Commander Enrico	Italian Telegraphs, Rome.
Peterson, E. B.	Great Northern Telegraph Company, Copenhagen.
Petersen, J. A. P.	Great Northern Telegraph Company, Mariehamn, Aland.
Pforden, Frederick von des	Eastern Extension Telegraph Company, Batavia.
Pissarewsky, Nicolas	18, Rue Znamenskaia, St. Petersburg.
Pope, Frank L.	Elizabeth, New Jersey, U.S.A.
Prescott, George B.	"The Berkeley," No. 20, Fifth Avenue, New York, N.Y., U.S.A.
Rae, Thomas W.	239, Broadway, New York, U.S.A.
Rau, Edouard	26, Boulevard de l'Observatoire, Brussels.
Raymond, L.	23, Rue Manbenge, Paris.
Raynaud, Jules	103, Rue de Grenelle, Paris.
Redonet, Don Jose de	Director of Spanish Telegraphs, Santander, Spain.
Rentzch, Fred. John	Eastern Extension Telegraph Company, Banjoewangie, Java.
Repsold, J. G.	
Rothen, Timotheus	Engineer-in-Chief of the Swiss Telegraphs, Berne.
Rousseau, A. J.	c/o G. F. Rogers, 5, Great Winchester Street Buildings, E.C.
Russell, Thorwold F.	Great Northern Telegraph Company.
Santman, L. J.	Inspector of Dutch-Indian Government Telegraphs, Batavia.
Sargent, W. D.	General Superintendent, The Telephone Company, 1111, Chestnut Street, Philadelphia, Pa., U.S.A.
Salvatori, Commander Fedele	Italian Telegraphs, Rome.
Schaffler, Otto	7, Halbgasse, No. 26, Vienna.
Schultz, C. A.	Great Northern Telegraph Company, Shanghai.
Seligmann-Lui, Gustave P.	23, Rue Denfert-Rochereau, Paris.
Severn, Henry A.	c/o Messrs. H. S. King & Co., 65, Cornhill, E.C.
SIEMENS, Dr. WERNER	94, Markgrafen Strasse, Berlin.
(Honorary Secretary for Germany.)	
Soldan, Don Carlos Paz	Lima, Peru.
Sonne, Carl C.	Great Northern Telegraph Company, Shanghai.
Spang, H. W.	Reading, Pennsylvania, U.S.A.
Staring, William	Director of the Netherlands Telegraphs, The Hague.
Stara, Eli, T.	Philadelphia, Penn.

Digitized by Google

Stearns, J. B.	43, Gordon Square. W.C.
Straube, Otto	Telegraph Engineer, No. 787, Calle Cangallo, Buenos Ayres.
Suenson, Albert	Great Northern Telegraph Company, Hong-Kong, China.
Suenson, Capt. Edward	Great Northern Telegraph Company, Copenhagen.
Summers, C. H.	Western Union Telegraph Company, Chicago, Illinois, U.S.A.
Swinyard, Thomas	Managing Director, Dominion Telegraph Company, Toronto, Canada.
Tessier, Jules	7, Rue de Theâtre, Grenelle, Paris.
Tobler, Dr. Adolph	Federal Polytechnic School, Zürich,
Trant, Lawrence B.	Provincial Telegraph Department, 103, Calle Cangallo, Buenos Ayres.
Ucelay, Don Pascual	Director of Spanish Telegraphs, Zaragoza.
Ugarte, Olegario V.	Inspector-General de los Telegrafos Nacionales, Buenos Ayres.
Vallejos, Higinio, Lieut-Col...	1, Faubourg St. Honoré, Paris.
Vazquez, Don Francisco	Sub-Director of Spanish Telegraphs, Madrid.
Viale, Commander Clemente..	Italian Telegraphs, Rome.
Vianisi, Le Marquis L.	Messina.
Vinchent, Julien	Inspector-General of the Belgian Public Works, Brussels.
Vogel, Carl	94, Markgrafen Strasse, Berlin.
Walker, Philip..	Poste Restante, Chateuil Drôme, France.
Willot, Joseph	57, Rue de Boulainvilliers, Paris-Passy.
Wilson, J. Chester	Pennsylvania Railroad Co., Altoona, Pennsylvania, U.S.A.
Wisse, W. J.	Sub-Director of the Government Telegraph Office, The Hague.
Wunchendorff, Jules H.	97, Rue de Rennes, Paris.
Zetzsche, Professor Dr. K. E.	N. Weissenburger Strasse, 27, Berlin.

Total Number of Foreign Members 172

MEMBERS.

ABEL, Professor, C.B., F.R.S. .. .. *(Past President.)*	Royal Arsenal, Woolwich.
ADAMS, Professor, W. G., F.R.S. .. .. *(Vice President.)*	43, Notting Hill Square, W.
Adams, M. R.	Indian Government Telegraphs.
Ahern, John	Exchange Telegraph Co., 9 & 10, Victoria-buildings, Manchester.
ALLEN, JAMES .. .. *(Honorary Secretary to the Argentine and Oriental del Uruguay Republics.)*	Telegraph Superintendent, Great Southern Railway, Buenos Ayres.
Anderson, Sir James	66, Old Broad Street, E.C.
Anderson, Richard, F.C.S.	44, Essex Street, Strand, W.C.
Andrews, Thomas	Anglo-American Telegraph Company, Brest.
Andrews, Tom B.	
ANDREWS, W. S. .. .. *(Member of Council.)*	Manager, Indo-European Telegraph Company, 18, Old Broad Street, E.C.
ANSELL, WILLIAM T. .. .. *(Member of Council.)*	66, Old Broad Street, E.C.
Armstrong, R. Y., Major, R.E.	Brompton Barracks, Chatham.
Atkinson, Dr. E., F.C.S.	Portesbury Hill, Camberley, Surrey.
AYLMER, JOHN, Civil Engineer .. .. *(Honorary Secretary for France.)*	4, Rue de Naples, Paris.
AYRTON, Professor W. E., F.R.S. .. .. *(Chairman of the Editing Committee.)*	68, Sloane Street, S.W.

Digitized by Google

* Bailey, John	India Rubber, Gutta Percha, and Telegraph Works Co., Silvertown, E.
* Barlow, William Henry, F.R.S	2, Old Palace Yard, S.W.
Bateman-Champain, J. U., Lt.-Col., R.E. *(Past President.)*	49 and 50, Parliament Street, S.W.
Beeman, Joseph S.	182, Earl's Court Road, Kensington, W.
Bell, Alfred D...	Waihemo, Otago, New Zealand.
* Bell, Andrew	Postal Telegraphs, Gloucester Road, N.W.
Bell, Professor A. G.	Office of the National Bell Telephone Company, 95, Milk Street, Boston, Mass. U.S.A.
Bennett, Alfred Rosling	267, Sauchiehall Street, Glasgow.
Beresford, Charles F. C., Captain, R.E. ..	Intelligence Department, War Office, Pall Mall, S.W.
Betts, A. S.	Kurrachee.
Betts, J. A.	Tient Sin, China.
Biggs, C. H. W.	7, Freeland Road, Bromley, Kent.
Binney, W. P...	Eastern Telegraph Company, Syra, Greece.
Bird, Edward C.	Indian Government Telegraphs, Bombay.
Bishop, James Draper..	Shanghai.
Blissett, T.	Indian Government Telegraphs, Calcutta, care of Messrs. Grindlay, & Co., 55, Parliament Street, S.W.
Bohr, Heinrick G. C.	Great Northern Telegraph Company, Shanghai.
Bold, E. H.	Napier, New Zealand.
Bolton, Frank, Lieut.-Colonel .. .. *(Honorary Secretary.)*	4, The Sanctuary, Westminster, S.W.
* Bourdeaux, John	Submarine Telegraph Company, Dover.
Boteler, R.	c/o Messrs. H. S. King & Co., 45, Pall Mall, S.W.
Boyle, R. Vicars, C.S.I., M. Inst. C.E. ..	3, Stanhope-terrace, Hyde Park, W.
Briggs, James A.	Indian Government Telegraphs, Jabalpur, Central Provinces, East Indies.
Bright, Sir Charles, M. Inst. C.E. .. *(Member of Council.)*	31, Golden Square, W.
Bright, Edward B. .. .. *(Member of Council.)*	31, Golden Square, W.
Bristow, G. L. .. .. *(Honorary Solicitor.)*	1, Copthall Buildings, E.C.
Brittle, John Richard	"Farad Villa," Vanburgh Hill, Blackheath.
Broadbent, J. E., Capt., R.E.	Simla, Punjab, India.
Brooke, William R.	Indian Government Telegraphs, Bombay, care of Messrs. King & Co., 65, Cornhill, E.C.
Brown, E. O.	Royal Arsenal, Woolwich, S.E.
Browne, W. J...	Indian Government Telegraphs.
Buller, Ernest, W.	49, Charlotte Road, Birmingham.
Burk, J.	c/o Messrs. King & Co., 45, Pall Mall, S.W.
Bury, Viscount, K.C.M.G.	65, Prince's Gate, W.
Canning, Sir Samuel, C.E.	7, Great Winchester Street Buildings, Old Broad Street, E.C.
Cappel, Albert, J. L.	c/o Messrs. Grindlay & Co., 55, Parliament St., S.W.
* Cardew, Philip, Lieutenant, R.E.	School of Military Engineering, Chatham.
Cargill, W. W., F.R.G.S.	Lancaster Lodge, Campden Road, Kensington, W.
Carmichael, Sir James, Bart	Submarine Telegraph Co., Threadneedle Street, E.C.
Carson, William, M. Inst. C.E.	Whitecross Wire & Iron Co., Warrington, Lancashire.
Cecil, Lord Sackville	The Oast House, Hayes Common, Beckenham, Kent.
Chambre, Alan E.	Camara Lodge, South Norwood, S.E.
Charles, G. G.	Indian Government Telegraphs, Calcutta.
* Chauvin, George von	Care of Messrs. Siemens Bros. & Co., 12, Queen Anne's Gate, Westminster, S.W.
Clark, Edwin, M. Inst. C.E	6, Westminster Chambers, Westminster, S.W.
Clark, Latimer, M. Inst. C.E. .. .. *(Past President.)*	6, Westminster Chambers, Westminster, S.W.
Clark, T. S.	Lancashire and Cheshire Telephonic Exchange, 38, Faulkner Street, Manchester.
Collett, Richard	19, St. Mary's Road, Harlesden, Middlesex.
Common, A. A., F.R.A.S.	63, Eaton Rise, Ealing, W.
Cooke, Conrad W.	6, Westminster Chambers, Victoria Street, S.W.
Cowper, E. A., M. Inst., C.E.	6, Great George Street, Westminster, S.W.
Cox-Walker, E.	Messrs. Harrison, Cox-Walker, & Co., Electricians, Darlington.

Digitized by Google

Cracknell, E. C. .. .. *(Honorary Secretary for New South Wales.)*	Superintendent of Telegraphs, Sydney, Australia.
Cracknell, W. J.	
Crampton, I. Russell, M. Inst. C.E. ..	4, Victoria Street, S.W.
† Crawford and Balcarres, Earl of, F.R.S. *(Member of Council).*	47, Brook Street, W.
Chiswick, George S., F.R.A.S.	Royal Observatory, Greenwich.
Cromartie, D. B.	Indian Government Telegraphs, Calcutta.
Crompton, R. E.	4, Mansion House Buildings, E.C.
Crookes, William, F.R.S.	7, Kensington Park Gardens, W.
Crossley, Louis J.	Moorside, Halifax, Yorkshire.
Culbertson, Dr. J. N.	
† Culley, R. S.	Saint Martin's, Weston-super-Mare.
Curtoys, Charles	Old Charlton, Kent.
Cushing, Thos., F.R.A.S.	India Store Depôt, Belvedere Road, Lambeth, S.E
Dakers, James .. .. *(Honorary Secretary for Canada.)*	Montreal Telegraph Company, Montreal, Canada
Daniell, Francis T. B.	Indo-European Telegraphs, Teheran, Persia.
Darling, W. C.	Indian Government Telegraphs.
Davids, R. G. B.	Estrada de Ferro Companhia Paulista, Campestina, Brazil.
Davies, William H.	Eastern Telegraph Company, Zanzibar
De la Rue, Warren, M.A., D.C.L., F.R.S.	73, Portland Place, W.
De Marsac, F. R.	Indian Government Telegraphs, care of H. J. Brown, Esq., 7, King's Bench Walk, Temple, E.C.
Dering, George E.	Lockleys, Welwyn, Herts.
De Sauty, C. V.	Eastern Telegraph Company, Gibraltar.
Despointes, F.	Submarine Telegraph Company, Threadneedle St., E.C.
Dewar, Professor, F.R.S.	Royal Institution, Albermarle Street, W.
Donovan, H. C.	Enderby's Wharf, East Greenwich, S.E.
Douglas, C., General, R.A.	India.
Douglas, J. C.	Indian Government Telegraphs, care of J. Runtz, Linton Lodge, Lordship-road, Stoke Newington, N.
Doyle, James D.	Victorian Railways, Melbourne, Victoria, Australia.
Dresing, Christian	Great Northern Telegraph Company, 119, Bishopsgate Street Within, E.C.
Duffin, C.	Indian Government Telegraphs.
Duthy, J. W. B.	Indian Government Telegraphs.
Edmunds, H., Jun.	Heath Villas, Halifax, Yorkshire.
Edwards, J. R.	Postal Telegraphs, Liverpool.
Eggington, Alfred	Eastern Telegraph Company, Otranto, Italy.
Edisforth, R. P.	St. Paul's Works, 76, Little Britain, E.C.
Elleby, James Henry	Lancashire & Yorkshire Railway Co., Manchester.
Ellery, J. L., F.R.S., F.R.A.S.	Government Astronomer, Melbourne, Victoria, Australia.
Ellis, William, F.R.A.S.	Royal Observatory, Greenwich.
Erichsen, H. G. .. .. *(Member of Council.)*	119, Bishopsgate Street Within, E.C.
Estler, Paul	Messrs. Siemens' Works, Charlton, Kent, S.E.
Evans, Mortimer, C.E., F.G.S., F.R.A.S.	Engineer to the Wemyss Bay Railway, Wemyss Bay.
Fahie, J. J.	13, Craven-street, Strand, W.C.
Ffinch, B. T.	18, St. Edmund-terrace, Regent's Park, N.W.
Field, S. D.	Stockbridge, Mass., U.S.A.
Fitzgerald, Desmond G.	6, Akerman Road, Brixton, S.W.
Fleming, J. A., B.A., D.Sc.	57, Holborn Viaduct, E.C.
Fleming, J. C.	Superintendent Government Telegraphs, Perth, Western Australia.
Fletcher, J. W.	Telegraph Department, London and North Western Railway, Manchester.
Flindell, R. B.	Indian Government Telegraphs.
Floyd, William Henry	Superintendent of Telegraphs, Great Indian Peninsular Railway, Bombay.
Forbes, Professor George, F.R.S.E. ..	35, Duke Street, St. James's, S.W.
Forde, H. C., M. Inst. C.E. .. .. *(Member of Council.)*	6, Duke Street, Adelphi, W.C.
Foster, A. le Neve	Pyramid Electric Co., Ltd., Whitecroft, Gloucestershire.

Digitized by Google

Foster, Professor G. C., F.R.S. *(Past President.)*	12, Hilldrop Road, N.
France, J. R.	General Manager, Mexican Telegraph Company, City of Mexico, Mexico.
Fraser, Captain Charles	Government Telegraph Department, Cape of Good Hope.
Fuller, John	Newcastle Wharf Works, Old Ford Road, Bow, E.
Fuller, John W.	c/o Messrs. Case and Londonsack, 1, James Street, Adelphi, W.C.
Fuller, Thomas	Brazilian Submarine Telegraph Co., 8, Great Winchester Street, E.C.
Furze, Edwin	Compania Telegrafica del Rio de la Plata, Buenos Ayres.
Galton, Captain Douglas, C.B., F.R.S.	12, Chester Street, Grosvenor Place, S.W.
Gavey, John	Postal Telegraphs, Cardiff.
Gerhardi, Charles A.	Leadenhall-buildings, Leadenhall Street, E.C.
Gilbert, Edward	Dundee and Arbroath Joint Railway, Calcutta Buildings, Commercial Street, Dundee.
Gisborne, Frederick N.	Government Telegraph Department, Ottawa, Canada.
Gladstone, Dr. John Hall, F.R.S.	17, Pembridge Square, W.
Glover, Walter T.	Moorhurst, Kersal, Manchester.
Godfrey, W. B.	54, Regent's Park Road, N.W.
Goldstone, Charles	London and South-Western Railway, Southampton.
Gordon, C. R. P.	8, Warwark Gardens, Kensington, W.
Gordon, J. E. H., B.A.	28, Collingham Place, S.W.
Gosselin, G. A.	Indian Government Telegraphs, Colombo, Ceylon (care of Henry S. King & Co., East India Agents, 65, Cornhill).
Gott, D. W.	Eastern Extension Telegraph Company, Port Darwin,
Gott, John	French Atlantic Telegraph Company, St. Pierre, Newfoundland.
Grant, Angus	Montreal Telegraph Company, Montreal.
Graves, A.	14, Priory Street, York.
* Graves, E. *(Honorary Treasurer.)*	Postal Telegraphs, General Post Office, E.C.
Graves, James	Anglo-American Telegraph Company, Valentia, Ireland.
Gray, Matthew *(Member of Council.)*	Lessness Park, Abbey Wood, Kent.
Gray, Robert K.	Silvertown, E.
Greener, J. H.	14, St. Swithin's Lane, E.C.
Greenhill, Matthew C.	Brighton Grove, Rusholme, Manchester.
Grover, George E., Major, R.E.	H.M. Dockyard, Portsmouth.
Guenzel, Ernest	Indo-European Telegraph Company, Tiflis, Caucasus, Russia.
Guthrie, Frederick, Ph. D., F.R.S.	Royal Normal School of Science, South Kensington, S.W.
Hall, William Henry, Captain, R.N.	H.M.S. "St. Vincent," Gosport.
Halpin, Robert C., Captain	38, Old Broad Street, E.C.
* Hancock, Walter	10, Upper Chadwell Street, Myddleton Square, E.C.
Hare, G. J.	Indian Government Telegraphs.
Harrison, Richard, Col., R.E., C.B.	United Service Club, Pall Mall, S.W.
Harvey, Frederick, Captain, R.N.	1, Sparrows Hern Villas, Bushey Heath, near Watford, Herts.
Harwood, F.	Eastern Telegraph Company, Carcavellos, Lisbon.
Hawkins, Frederick	India Rubber and Gutta Percha Company, Silvertown, E.
Haynes, F. T. J.	Great Western Railway, Taunton.
Heaviside, A. W.	Postal Telegraphs, Newcastle-on-Tyne.
Hedges, Killingworth	25, Queen Anne's Gate, Westminster, S.W.
Henley, W. T.	Chesterton House, Plaistow, Essex.
Henneberg, Otto	Geisenau Strasse, 100, S.W., Berlin.
* Higgins, Frederick	Exchange Telegraph Company, 17, Cornhill, E.C.
Hill, A. D.	Indian Government Telegraphs.
Hill, T. C.	Indian Government Telegraphs.
Hoeltzer, C.	Cambridge House, Old Charlton Village, Kent, S.E.
Hooper, J. P.	Coventry Park, Streatham, S.W.
Hopkinson, Dr. J. H., M.A., F.R.S.	78, Holland-road, Kensington, W.
Houghton, E.	London, Brighton and South Coast Railway Company, London Bridge, S.E.

Digitized by Google

Houtum-Schindler, General Albert	Inspector-General of Persian Telegraphs, Teheran.
Howe, J.	Brazilian Submarine Telegraph Company, Pernambuco.
Hughes, Professor, D.E., F.R.S. .. .. *(Vice-President.)*	108, Great Portland-street, W.
Hurley, Edward Butler	Colombo, Ceylon.
Hutchinson, S. H. C.	Indian Government Telegraphs.
Hyde, H., Major-General, R.E.	India Office, Westminster, S.W.
Irvine, A. H.	Mersey Railway Company, Birkenhead.
Jacob, Frank	2, Oakland Villas, Maryon Road, Charlton, S.E.
James, T. R.	Government Telegraph Department, Melbourne, Australia.
Jamieson, Andrew, C.E., F.R.S., E. ..	Principal of the College of Science and Art, Glasgow.
Jenkin, Fleeming, Professor, F.R.S., M. Inst. C.E.	3, Great Stuart Street, Edinburgh.
Jenkin, John	Office of the Engineer-in-Chief, General Post Office, E.C.
Jervois, Sir W. H., General, R.E., K.C.M.G., C.B.	Government House, Adelaide, South Australia.
Johnson, J. Thewlis	Bradford Iron Works, Manchester.
Johnson, Walter C.	King's Garden, Eltham, Kent.
Johnston, W. P.	Indian Government Telegraphs.
Jones, J. C. D.	Eastern Extension Telegraph Company, Singapore.
Jones, T. J.	12, Princes Street, Hanover Square, W.
Jones, W. C. Nigel	Indian Government Telegraphs.
Judd, Walter	Eastern Extension Telegraph Company, Penang.
Kaiser, E. F.	94, Markgrafen Strasse, Berlin.
Keith, George, C.E.	c/o the Cuba Submarine Telegraph Company, 61, Old Broad Street, E.C.
* Kempe, H. R.	Postal Telegraphs, General Post Office, E.C.
Kieser, W.	Messrs. Elliott Bros., 101, St. Martin's Lane, W.C.
Ladd, W.	Claremont Villa, Rectory-road, Beckenham, Kent.
Laister, James	Postal Telegraphs Schools, Moorgate Street Buildings, E.C.
Lambert, Frank	7, Pope's Head Alley, Lombard Street, E.C.
Langdon, William	Superintendent, Telegraph Department, Midland Railway, Derby.
Lane, J. H.	Indian Government Telegraphs.
Lane, J. M.	Indian Government Telegraphs, Calcutta.
Larkin, Thomas J.	Holly House, 18, Maygrove Road, Kilburn, N.W.
Larkins, A. B.	Indian Government Telegraphs.
Lauckert, Edward	99, Maryon Road, New Charlton, S.E.
Laughlin, Robert C.	Gorton, Newton, Stewart & Co., Tyrone, Ireland.
Lavender, John	5, Carter Street, Roman Road, Higher Broughton, Manchester.
Lemon, C., Ph. D., ... *(Honorary Secretary for New Zealand.)*	Wellington, New Zealand.
Le Mesurier, F. A., Major, R.E.	Manchester.
* Loeffler, Louis	12, Queen Anne's Gate, Westminster, S.W.
Lorrain, James Grieve	2, Victoria Mansions, Westminster, S.W.
Luke, S. P. W. V., C.I.E.	Indian Government Telegraphs, Calcutta.
Lund, John A.	41, Cornhill, E.C.
Lundy, Charles	Direct United States Cable Company, Torbay, Nova Scotia.
McGrath, E. A.	Indian Government Telegraphs.
McLeod, Professor H.	The Royal Indian Engineering College, Cooper's Hill.
Mackenzie, James	48, Osnaburgh Street, Regent's Park, N.W.
Maclean, F. G.	Indian Government Telegraphs, Kurrachee.
Macleane, C. J. H.	Indian Government Telegraphs.
Maitland, James M. H., Lt.-Col., R.E. ..	Aldershot.
Maginnity, Andrew T.	Telegraph Department, Wellington, New Zealand.
* Malcolm, E. D., Lieut.-Col., C.B., R.E. ..	18, Queen's Gate Place, S.W.
Mallock, H. Lieut.-Col., B.S.C.	Indian Government Telegraphs, Simla.

Digitized by Google

Mance, H. C.	Indo-European Government Telegraphs, Kurrachee.
Marks, C. B. D.	Indian Government Telegraphs.
Mathieson, James	18, Adam Street, Adelphi, W.C.
Mayne, R. C., Admiral, R.N., C.B.	101, Queen's Gate, Hyde Park, S.W.
McEvoy, Capt. C. A.	18, Adam Street, Adelphi, W.C.
McGowan, Samuel W. *(Honorary Secretary for Victoria.)*	Chief Inspector of Telegraphs and Postal Service, Melbourne, Victoria, Australia.
McGregor, William	Indian Government Telegraph Department, River View, Dhubri, Lower Assam.
Meddings, W. G.	Inspector of Telegraphs, Christchurch, New Zealand.
Melhuish, W. F.	Indian Government Telegraphs, Calcutta.
Melville, W. B.	Indian Government Telegraphs.
Mittelhausen, Julius	28, Wood Street, Woolwich, S.E.
Moberley, G. J.	Indian Government Telegraphs.
Möll, F. H. L.	Indo-European Telegraph Company, 18, Old Broad Street, E.C.
Moors, Henry	Torpedo and Signal Corps, Melbourne, Victoria, Australia.
Morgan, C. G.	
Morris, J.	
Moulton, J. Fletcher, F.R.S. *(Member of Council.)*	11, King's Bench Walk, Temple, E.C.
* Muirhead, Alexander, D.Sc., F.C.S.	Oakwood, 12, Farquhar Road, Upper Norwood.
Murray, K. L.	Victorian Railways, Melbourne, Victoria, Australia.
Murray, R. Col., B.S.C.	Director-General of the Indian Government Telegraphs, Calcutta.
Naglo, Emil	44, Waldemar Strasse, Berlin.
Neale, John	North Staffordshire Railway, Stoke-upon-Trent.
Nelson, Frederick D.	Indo-European Telegraph Company, Teheran, Persia.
Newitt, W. T.	Eastern Extension Telegraph Company, Elephant Point, Rangoon.
* Newman, G. G.	2, Holles Street, Cavendish Square.
Nosworthy, William F.	Compania Telegrafica Submarina, Monte Video.
Obach, Dr. Eugen	Messrs. Siemens Brothers & Company, Charlton, S.E
O'Kelly, H. M., B.A.	Indian Government Telegraphs, Madras.
Oldham, John	Compania Telegrafica del Rio de la Plata, Monte Video
Oppenheimer, Joseph	52, Brown Street, Manchester.
Ormiston, Frederick A.	Riverside, Twickenham.
Ovens, J.	28, Bishop's Road, Bayswater, W.
Owen, H. P.	Indian Government Telegraphs (care of Messrs. Henry S. King & Co., 65, Cornhill, E.C.)
Parsone, E. W.	Manager, West Coast of America Telegraph Company, Calle Blanco, Valparaiso.
Paterson, E. J.	St. Paul's Works, 76, Little Britain, E.C.
Peake, J.	Indian Government Telegraphs, Beejapore, India.
Pell, Bennett	General Manager, Australian and China Telegraph Company, Singapore.
Perry, Professor John	14, Talgarth Road, West Kensington, W.
Phillips, Frederick C.	Victoria Works, Lambeth, S.E.
Phillips, Samuel E., Jun.	Holbrook, Shooter's Hill, Kent.
Pitman, C. E., C.I.E., F.R.G.S.	Indian Government Telegraphs.
* Pitt, St. George Lane Fox	4, Grosvenor Gardens, S.W.
Porritt, T. W.	Compania Telegrafica Platino-Brazilero, Monte Video.
Preece, John Richard *(Honorary Secretary for Persia.)*	Indo-European Government Telegraphs, Shiraz, Persia.
Preece, W. H., F.R.S., M. Inst. C.E. *(Past President.)*	Gothic Lodge, Wimbledon.
Radcliffe, Arthur H. W.	5, Carr's Lane, Birmingham.
Radcliffe, James	Telegraph Department, Great Northern Railway, Retford.
Rapieff, John	7, Finsbury Park Road, N.
Rawson, Frederick L.	11, Queen Victoria Street, E.C.
Rawson, Herbert, Lieut., R.E.	5, Clifton Terrace, Monkstown, Dublin.
Reade, A. J. M.	Care of Messrs. H. S. King & Co., 65, Cornhill, E.C.
Reid, James	12, Wharf Road, City Road, N.

Digitized by Google

Reynolds, Charles	Indian Government Telegraphs, Calcutta.
Rhodes, E. F., Lieut., R.E.	Junior United Service Club, Charles Street, St. James's, S.W.
Riddle, Edward	21, Woodlands Villas, Blackheath, S.E.
Risch, Gustav	Belvedere Cottage, Landsdowne Road, Old Charlton, S.E.
Rogers, R. W. S., Lieut., R.N.	The College, Portsmouth Dockyard.
Rosenbusch, Edward. *(Honorary Secretary for Malta and the Mediterranean.)*	Mediterranean Extension Telegraph Company, Valetta, Malta.
Rücker, Professor Arthur W., M.A.	The Yorkshire College, Leeds.
Rutherford, J. M.	District Traffic Superintendent, Rajputana State Railway, Ajmere.
* Sabine, Robert, C.E.	Grosmont House, Hampton Wick.
Sach, Henry	Great Eastern Railway, Liverpool Street Station, E.C.
Salomons, Sir David, Bart., B.A.	Broom Hill, Tunbridge Wells.
Saunders, H. C.	Eastern Telegraph Company, 66, Old Broad Street, E.C.
Saunders, J. B.	Teignmouth.
Schramm, Otto	9, Victoria Road, Old Charlton, Kent.
Scratchley, P. H., Major-General, R.E.	Public Works Office, Melbourne, Victoria, Australia.
Sharpe, Charles J.	27, Great George Street, Westminster, S.W.
Shakespear, Colonel J. D.	2, West Kensington Terrace, W.
Sheath, Alfred	Felden House, Boxmoor, Hemelhempstead.
Shoolbred, James N., B.A., M. Inst. C.E.	3, Westminster Chambers, Victoria Street, S.W.
† Siemens, Carl, M. Inst. C.E.	Messrs. Siemens & Halske, St. Petersburg.
Siemens, Charles William, D.C.L., LL.D., F.R.S. *(Past President.)*	12, Queen Anne's Gate, Westminster, S.W.
Siemens, Alexander *Member of Council.*	12, Queen Anne's Gate, Westminster, S.W.
Simkins, A. R. M.	
Simmons, Sir J. Lintorn, Gen., R.E., G.C.B.	36, Cornwall Gardens, S.W.
* Sivewright, Jas., M.A., C.M.G. *(Honorary Secretary for the Cape and South Africa.)*	General Manager of Telegraphs, Cape of Good Hope.
Skinner, T.	Postmaster-General and Director of Telegraphs, Colombo, Ceylon.
Skinner, M. W., Lieut., R.E.	Ordnance Survey Office, 13, Parliament Street, S.W.
Sleeman, C. W.	18, Adam Street, Adelphi, W.C.
Smith, Benjamin	Eastern Telegraph Company, Aden.
Smith, R. M., Lieut.-Colonel, R.E.	Director of the Indo-European Government Telegraphs, Teheran, Persia.
Smith, Theophilus	Alcester, Redditch.
Smith, Willoughby *(Vice President.)*	18, Wharf Road, City Road, N.
Snell, H.	11, Rua do Commercio, Pernambuco, Brazil.
Spagnoletti, C.E. *(Vice-President.)*	G. W. Railway, Paddington, W.
Sprague, J. T.	315, Green Lane, Birmingham.
Sterne, Louis	9, Victoria Chambers, Westminster, S.W.
Stiffe, Arthur W.	Manora, Hollington Park, St. Leonards-on-Sea.
St. John, Sir O. B. C., Lieut.-Col., R.E., K.C.S.I.	124, Lexham Gardens, Cromwell Road, S.W.
Stockley, Lieut.-Col., R.E.	Colombo, Ceylon.
Stone, Dr. W. H., M.A., F.R.C.P.	14, Dean's Yard, Westminster, S.W.
Stotherd, R. H., Col., R.E.	Mountjoy Barracks, Phœnix Park, Dublin.
Stroh, Augustus *(Member of Council.)*	98, Haverstock Hill, N.W.
Swan, Joseph W.	Mosley Street, Newcastle-on-Tyne.
Symons, Kyrle Emile	Indian Government Telegraphs.
Talbot, Frank F.	Telegraph Superintendent, Central Argentine Railway, Rosario de Sta. Fé.
Tansley, Edward	Postal Telegraphs, Glasgow.
Taylor, Herbert, C.E.	7, Pope's Head Alley, Cornhill, E.C.
Teale, Fred. G. *(Acting Honorary Secretary for India.)*	Indian Government Telegraphs, Calcutta.
Ternant, A. L.	2, Boulevard du Muy, Marseilles.

Digitized by Google

Terp, Julius	Great Northern Telegraph Company, Aberdeen, N.B.
Thompson, H. E.	Indian Government Telegraphs, Alipore.
Thompson, Professor Silvanus P., B.A., D.Sc., F.R.A.S.	University College, Bristol.
Thomson, Sir William, F.R.S., LLD. *(Past President.)*	The University, Glasgow, N.B.
Thornton, M. L. E.	c/o Messrs. King & Co., 45, Pall Mall, S.W.
Ticehurst, F. G.	The Old House, Battle, Sussex.
Tiddy, William N.	12, Princes Street, Hanover Square, W.
Tietgen, C. F.	Privatbanken, Copenhagen.
Todd, Charles, C. M. G. *(Honorary Secretary for South Australia.)*	Director-General, South Australian Telegraphs, Adelaide, Australia.
Towers, G. L.	Indian Government Telegraphs.
Treuenfeld, R. Von Fischer	12, Queen Anne's Gate, Westminster, S.W.
Trower, M. R.	(Indian Government Telegraphs) care of Messrs. Grindlay, Groom & Co., Bombay.
* Truman, Edwin Thomas	23, Old Burlington Street, W.
Tubb, H. H.	5, Charlton Terrace, Friern Road, Lordship Lane, East Dulwich.
Turner, H. F., Major R. E.	Postal Telegraphs, Bristol.
Tyndall, Professor John, LLD., F.R.S	Royal Institution, Albemarle Street, W.
Varley, C. F., F.R.S., M.Inst.C.E. *(Member of Council.)*	1, Great Winchester Street Buildings, Old Broad Street E.C.
Varley, F. H.	Mildmay Park Works, Stoke Newington, N.
Walker, C. V., F.R.S., F.R.A.S., F.M.S. *(Past President.)*	26, Upper Grosvenor-road, Tunbridge Wells.
Walker, E. O.	Indian Government Telegraphs.
Walker, Sidney F.	195, Severn-road, Cardiff.
Walsh, John	2, Blanche Villas, Stretford, near Manchester.
Warburton, E. C.	Telegraph Department, Lancashire and Yorkshire Railway, Manchester.
Ward, A. R.	Indian Government Telegraphs.
Ward, G. G. *(Honorary Secretary for N. America.)*	Direct United States Cable Company, 16, Broad Street, New York.
Warden, W. M.	Broad Street, Birmingham.
* Weaver, Henry	Caton Lodge, Streatham Hill, Surrey.
Webb, E. March	India Rubber Company, Silvertown, E.
Webb, F. C., M.Inst.C.E.	Palace Chambers, Bridge Street, Westminster, S.W.
Webber, C. Edmond, Lt.-Col. R. E., C.B. *(President.)*	Alvercliff, Gosport, Hants.
Wells, T. H.	The Anglo-American Telegraph Company, 26, Old Broad Street, E.C.
* Whitehouse, E. O. Wildman	Down Place, Harting, Petersfield.
Wiese, W.	Indian Government Telegraphs, Calcutta.
Williams, W.	33, Green Park, Bath.
Wilson, William I., F.C.S.	2, Westwick Gardens, Shepherd's Bush, W.
Winter, G. K., F.R.A.S.	Arconum, near Madras.
Winter, William Henry	Postal Telegraphs, General Post Office.
Wollaston, Charlton	9, Great Winchester Street, E.C.
Total Number of Members	366

ASSOCIATES.

* Adams, Alex. J. S.	Postal Telegraphs, General Post Office.
Adamson, E. W.	Submarine Telegraph Company, Eastdean Eastbourne.
Addison, G. W., Capt., R. E.	War Office, Whitehall, S.W.
Aird, John	Belvedere Road, Lambeth.
Aldis, Robert W.	Postal Telegraphs, Colchester.
Allen, C. E.	Indo-European Government Telegraphs, Bushire.
Allen, J. J.	Indian Government Telegraphs, Calcutta.
Allen, Percy	Woodbury Hill, Loughton, Essex.

Digitized by Google

Almack, Edward	King's College Hospital.
Almond, George B.	Eastern Telegraph Company, Candia, Crête.
Anders, George L.	31, Queen Victoria Street, E.C.
Anderson, James	Eastern Telegraph Company, Syra.
Anderson, Thomas	176, Abbott Road, Poplar, E.
Andrew, John R.	Telegraph Department, London and North Western Railway Company, Chester.
Andrews, J. D. F.	National Electric Company, 48, West George Street, Glasgow.
Andrews, S.	Postal Telegraphs, G.P.O., E.C.
Anstruther, Ralph W., Lieut., R.E.	c/o Messrs. Cox & Co., Agents, London.
Ascough, T. B...	Postal Telegraphs, Telegraph Street, E.C.
Ash, William H.	Eastern Telegraph Company, Porthcurno, Penzance.
Ashton, Edwin	Postal Telegraphs, Cambridge.
Bagnold, Arthur H., Lieut., R.E.	Junior United Service Club, Charles Street, St. James', S.W.
Bailey, J. F.	
Bailey, S. S.	Anglo-American Cable Company, Heart's Content, Newfoundland.
Baines, A. E.	Eastern and South African Telegraph Company, Lourenco Marques, Africa.
Ballard, W. H.	Postal Telegraphs, Plymouth.
Bambridge, G. H.	Compagnie Française du Télégraphe, de Paris à New York, 100, Gresham House, E.C.
Banker, S. M.	Avon Villa, Pellatt Grove, Wood Green, N.
Barker, Edward R.	Brazilian Submarine Telegraph Company, Madeira.
Barrett, Professor W. F., F.R.S.E...	Royal College of Science, Dublin.
Barry, P. F.	6, Alfred Street, Cork.
Baxter, William J.	46, Stock Orchard-crescent, Holloway, N.
Bayly, Brackenbury	Government Telegraphs, Cape Town.
Bayly, Robert	Torr Grove, Plymouth.
Bazeley, Thomas	Postal Telegraphs, Cardiff.
Beaumont, Commander L. A., R.N.	H.M.S., "Excellent," Portsmouth.
Beckett, J. W...	Postal Telegraphs, Lancaster.
Beckingsale, Edgar William	"Brush" Electric Light and Power Co. of Scotland, 119, St. Vincent, St. Glasgow.
Belfield, Reginald	Llyndally, 1, Palace Road, Streatham Hill, S.W.
Bell, Alexander Carlyle	Thames Chambers, 12, York Buildings, Adelphi, W.C.,
Belville, William	Ferro Carril del Sud, Buenos Ayres.
Ben'est, Henry	15, Campbell Road, Bow, E.
Bennett, F. W., Lieut., R.E.	British Post Office, Constantinople.
Bent, William	22, Calvert Road, East Greenwich, S.E.
Beresford, James	Messrs. Richard Johnson & Nephew, Manchester.
Berly, J. A.	Electric Villa, 3, Deronda Road, Herne Hill, S.E.
Berrington, Evelyn D. D.	Eastern Telegraph Company, 2, Boulevard du Muy, Marseilles.
Berner, I. O. L.	Great Northern Telegraph Company, 119, Bishopsgate Street Within, E.C.
Bewick, T. J., C.E.	Haydon Bridge, Northumberland.
Bidwell, Shelford, M.A., LL.B.	Riverstone Lodge, Wandsworth.
Black, Francis Daniel	Aske Villa, Heaton Moor, near Stockport.
Blackmore, C., Sergeant, R.E.	Indo-European Government Telegraphs, Persia.
Blakey, Edwin	Northern Telegraph Works, Halifax.
Blandford, William	Electric Telegraph Department, Melbourne, Victoria, Australia.
Blewett, George	17, Osborne Road, Tollington Park, N.
BLUNDELL, J. WAGSTAFFE *(Auditor.)*	12, Delahay Street, Westminster.
Bolton, F.	Eastern Telegraph Company, 12, Carintia, Trieste.
Bolton, Walter	35, Comerford-road, Brockley, S.E.
Bompas, G. C.	4, Great Winchester Street Buildings, E.C.
Bond, Lieut. F. G., R.E.	South Camp, Aldershot.
Bosse, Karel, P. J. S...	India Rubber Company, Silvertown.
Bosomworth, Wm.	8, Bloomfield Terrace, Chapel Lane, Headingley, Leeds.
Botham, Arthur, Sergeant, R.E.	Postal Telegraphs, Portsmouth.

Digitized by Google

Bottomley, J. T.	The College, Glasgow, N.B.
Buhervaise, W. B.	The Electric Telegraph Department, Ballarat, Victoria, Australia.
Bottomley, William	2, Eton Terrace, Hillhead, Glasgow.
Bottomley, W. F.	Messrs. David Moseley & Sons, 2 & 4, New Brown Street, Manchester.
Boulting, T.	16, Union-street, Middlesex Hospital.
Bourne, Robert O.	General Inspector, Post and Telegraph Department, Bowen, Queensland, Australia.
Bradley, Richard	82, Victoria Terrace, Ashton-under-Lyne.
Bradshaw, Sergt. A. D., R.E.	Brompton Barracks, Chatham.
Brain, W. B.	St. Annals, Cinderford, Gloucester.
Brayshaw, T. H.	Eastern Telegraph Company, Cyprus.
Brockie, J.	British Electric Light Company, Heddon Street, Regent Street, W.
* Brodie, Colin	Private Wire Department, Secretary's Office, G.P.O.
Brook, Albert	Direct United States Cable Company, 53, Old Broad Street, E.C.
Brook, Walter	Direct United States Cable Company, 53, Old Broad Street, E.C.
Brown, Frederick	44, Upper George Street, W.
Brown, James	Direct United States Cable Company, 16, Broad Street, New York, U.S.
Brown, R. T.	1, Woodland-road, Barnes Common, Surrey.
Browne, Henry V.	Direct Spanish Telegraph Company, Barcelona.
Browning, Walter W.	Eastern Extension Telegraph Company, Singapore.
Bucknill, J. T., Capt., R.E. *(Associate Member of Council.)*	Thorn Hill, Bitterne, Hants.
• Bullivant, W. M.	2, London Street, E.C.
Bullock, Thomas A.	Eastern Telegraph Company, 66, Old Broad Street, E.C.
Butcher, S.	Indo-European Telegraph Department, Kurrachee.
Butler, Arthur	Eastern Extension Telegraph Company, Singapore.
Byrne, T. H.	Brighouse, Yorkshire.
Caillard, V., Lieut. R.E.	Gosport.
Campbell, Edward	Postal Telegraphs, Glasgow.
Campbell, W. B.	National Telephone Co., 11, Queen Victoria-Street, E.C.
Carew, W. R. H.	
Carlisle, Henry	Eastern Telegraph Company, Port Durban, Natal.
Carpenter, F. H.	Western and Brazilian Telegraph Company, Maranham.
Carr, George, Lieut., R.E.	H.M.S. "Hood," Chatham.
Carr, George M.	Postal Telegraphs, Sunderland.
Carson, J. H.	Anglo-American Telegraph Company, 26, Old Broad Street, E.C.
Casserley, S. W., LL.B.	7, Crown Office Row, Temple, E.C.
Challen, Peter R.	Victoria Posts and Telegraph Department, Melbourne, Victoria, Australia.
Chambers, John Charles	Postal Telegraphs, Leeds.
Cheesman, H. G.	Eastern Telegraph Company, Lisbon.
Cherrill, Nelson K.	32, Avenue Daumennil, Paris.
Chetwynd, Eustace W.	Receiver and Accountant-General's Office, G.P.O., E.C.
Chevallier, C.	Eastern Telegraph Company, Aden.
Chevallier, Fielding	
Clapperton, George	American Telegraph & Cable Co., Canso, Nova Scotia.
Clarke, W., Sergeant, R.E.	Indo-European Government Telegraphs, Shiraz, Persia.
Clement, Adam F.	North British Railway, Edinburgh.
Clements, G. M.	17, Gresham House, E.C.
Clipperton, Henry	Eastern Extension Telegraph Company, Singapore.
Cochrane, W. H.	St. Stephen's Chambers, Telegraph Street, E.C.
Cockburn, A. C., F.C.S.	29, Brownswood-road, Queen's-road, Finsbury-park, N.
Coffin, Walter H., F.C.S., M. Phys. S.	94, Cornwall Gardens, South Kensington, S.W.
Cole, C. J.	Eastern Extension Telegraph Company, Rangoon.
Coleman, Alfred	National Telephone Company, Room 204, Swan Arcade, Bradford.
Colley, Benjamin W.	Anglo-American Telegraph Company, St. Pierre, Newfoundland.

Digitized by Google

Collings, Charles E.	Postal Telegraphs, Plymouth.
Collins, Ebenezer	Cape Government Telegraphs, Murraysburg, Cape Colony.
Conti, E.	14, Lascelles-place, Bloomsbury, W.C.
Cook, F. W.	Telegraph Department, G.N.R., Retford.
Cooper, M.	Postal Telegraphs, G.P.O., E.C.
Corner, Charles R.	3, Copthall Chambers, Throgmorton Street, E.C.
Cox, F. W. Pope	Bedford Chambers, Plymouth.
Crilly, John Hamilton	Anglo-American Telegraph Company, Brest.
Croal, T. A.	Postal Telegraphs, Edinburgh.
Crofton, Edward	2, Paper Buildings, Inner Temple, E.C.
Cuff, John C.	Eastern Extension Telegraph Company, Singapore.
Cunnington, Joseph G. S.	17, Gilbert Terrace, Trierson Road, West Hampstead.
Dallas, John	21, Alma Square, St. John's Wood.
Dallas, Thomas E.	West Coast of America Telegraph Company, 98, Cannon Street, E.C.
Dalton, Samuel T.	41, Torriano Avenue, Camden Road, N.W.
Daly, Henry de Burgh	Metropolitan Surveyor's Office, G.P.O., 4, Adelaide Street, Charing Cross, W.C.
Danvers, F. C. *(Auditor)*	India Office, S.W.
Davies, David	7, Gower Street, W.C.
Davies, F.	
Davies, J. R.	Indian Government Telegraph Department.
Davies, William Henry	Exchange Telegraph Company, 17, Cornhill, E.C.
Davis, Capt. H. V. Hart, R.E.	Aldershot.
Davis, James	51, Tyrrell Street, Bradford, Yorkshire.
Davis, Joseph	"Fitzroy Works," 6, Kennington Park-road, S.E.
Dearlove, Arthur L.	c/o Messrs. Clark, Forde and Co., 7, Pope's Head-alley, Cornhill, E.C.
Dew-Smith, A. G., M.A.	Trinity College, Cambridge.
Dickenson, Samuel S.	Direct United States Cable Company, Torbay, Nova Scotia.
Dickenson, W.	Anglo-American Telegraph Company, Heart's Content, Newfoundland.
Dieselhorst, Wilhelm	Messrs. Siemens Brothers and Co., Charlton, S.E.
Doherty, John	Postal Telegraphs, Manchester.
Donald, John	Postal Telegraphs, Stranraer.
Donaldson, J.	Postal Telegraphs, Reading.
Douglas, Sholto McKenzie	Tjinta Radja, Langkat, Penang, Sumatra.
Dowson, Harold Northcote	Christchurch-road, Worthing.
Dowson, J. Emerson	3, Great Queen Street, Westminster, S.W.
Draper, George	Secretary Eastern Telegraph Company, 66, Old Broad Street, E.C.
Draper, John H.	Finkle Street, Stockton-on-Tees.
Driver, George	British Telegraph Works, 406, Euston Road, N.W
Druitt, E., Lieut., R.E.	Pembroke Dock.
Duberly, F.	
Dubern, George	Calcutta.
Ducloy, Jacques F.	Submarine Telegraph Company, Threadneedle St., E.C.
Duff, B.	Government Telegraph Department, Cape of Good Hope.
Dunbar, William	Inspector of Telegraphs, Cape Colony.
Dunn, Andrew S.	Telegraph Department, Caledonian Railway Company, Glasgow, N.B.
Durran, William	Eastern Telegraph Company, Aden.
Dyer, F. W.	Postal Telegraph Stores, Bolton, Lancashire.
Earle, Edward	Anglo-American Telegraph Company, St. Pierre, Newfoundland.
Earle, Samuel A.	Anglo-American Telegraph Company, St. Pierre, Newfoundland.
Ebel, Julius	Compagnie Française du Télégraphe de Paris à New York, 100, Gresham House, E.C.
Eden, Augustus	Postal Telegraphs, Edinburgh.
Edgar, James	Post Office, Wrexham.
Edwards, J. P.	Government Telegraphs, Cape Town.
Elam, Dr.	75, Harley Street, W.

Digitized by Google

Elliott, Thomas	Engineer's Department, Postal Telegraphs, Hull.
Emmott, Walter	Northern Telegraph Works, Halifax, Yorkshire.
Erichsen, Herman	Grove Cottage, Upper Tooting, S.W.
Evans, Frederick E.	Postal Telegraphs, Birmingham.
Eymers, F. C.	Nile Cottage, Wood Street, Woolwich, S.E.
Falck, D. Anosi	Government Telegraph, Grahamstown, Cape Colony.
Falck, A.	Great Northern Telegraph Company, Gothenberg, Sweden.
Fargues, John	Telegraph Department, Teheran, Persia.
Ferguson, Henry	Intelligence Section, Secretary's Office, G.P.O., E.C.
Feytens, P. F.	Direct Spanish Telegraph Company, Marseilles.
Field, Charles Leopold	Upper Marsh, Lambeth.
Fielding, Major-General the Hon. W.	162, Sloane Street, S.W.
Finley, W. H., B.A.	Royal Observatory, Cape of Good Hope.
Fisher, J.	Government Telegraph, Geelong, Victoria, Australia.
* Fleetwood, Charles Thomas	Post Office Telegraphs, General Post Office, E.C.
Fletcher, Thomas	36, Coleman Street, E.C.
Ford, T.	Postal Telegraphs, Bolton.
Forshaw, Alfred C.	Direct United States Cable Company, 34, Throgmorton Street, E.C.
Fothergill, J. W.	
Foxcroft, William M. Telgohell	Holford-street, W.C.
Franklin, James	Bombay and Baroda Railway Company, Bombay.
Fraser, Arthur J.	14, Buckingham Street, Charing Cross, W.C.
Fraser, Percy S.	Inspector of Telegraphs, Cape of Good Hope.
Fraser, W. J.	Direct United States Cable Company, Rye Beach, U.S.
French, J.	Indian Government Telegraphs, Bellary, India.
French, S. R.	Secretary's Department, Postal Telegraphs, General Post Office, E.C.
Frost, Alfred J. (*Librarian.*)	6, Westminster Chambers, Victoria Street, S.W.
Fry, J. O.	
Fulford, R. B., Lieut., R.N.	H.M.S. "St. Vincent," Gosport.
Fuller, George	Newcastle Wharf Works, Old Ford Road, Bow, E.
Fulton, C.	Anglo-American Telegraph Company, 26, Old Broad Street, E.C.
Gallwey, Edward, Lieut., R. N.	H.M.S. "Vernon," Portsmouth.
Gaines, M. J.	Anglo-American Telegraph Company, Duxbury, Mass., U.S.
Gatehouse, T.	35, Flaxman-road, Camberwell, S.E.
Gee, Basil	6, Tyler-street, East Greenwich, S.E.
Gell, J.	Telegraph Department, Wellington, New Zealand.
George, Frederick	Deputy Inspector-General of Egyptian Telegraphs, Cairo.
Gibson, James	Postal Telegraphs, Edinburgh.
Gifford, F. W.	Indo-European Government Telegraphs, Shiraz, Persia.
Gilbert, A. E.	Broughty Ferry, Scotland.
Gilbert, John J.	72, Cambridge Street, The Crescent, Birmingham.
Gilhespy, Wm.	Eastern Telegraph Company, Cairo.
Gisborne, Francis H.	Telegraph and Signal Service, Ottawa, Canada.
Gladstone, Charles E., Lieut., R.N.	H.M.S. "Vernon," Portsmouth.
Glegg, Alexander	c/o Messrs. Bowen & Co., Phœnix Foundry, Mount Pleasant, Clerkenwell.
Gooch, William D.	25, Haworth Buildings, 5, Cross Street, Manchester.
Goodman, H. M.	"Avalon," Catford Hill, Catford, Kent.
Goodsall, Captain W.	17, Bartlett's Buildings, Holborn Circus, E.C.
Goodwin, M.	1, Bank of England Place, Plymouth.
Gordon, George Keith, Lieut., R.N.	
Gostling, F. G.	Oakley, Bedford.
Grace, C. H.	Eastern Extension Telegraph Company, Rangoon.
Graham, Alfred	9, Graces Road, Camberwell.
Graham, W. J.	1, White House Villas, Woodland Terrace, Charlton, S.E.
Granville, William P.	195, Southgate Road, N.
Graves, A.	Belmont House, Parkholme-road, Dalston, E.

Digitized by Google

Graves, E.	Indo-European Government Telegraphs, Teheran, Persia.
Gray, H.	Indo-European Telegraph Company, Teheran, Persia.
Greenhill, J. E.	Downs Park Road, Clapton, E.
* Greer, MacGregor, Captain, R.E.	Westminster Palace Hotel, S.W.
Grindle, George A.	Linden House, Cambridge Gardens, Notting Hill, W.
Gripper, Francis E.	19, Great George Street, Westminster, S.W.
Groves, William	89, Bolsover Street, Portland Place.
Gümpel, C. Godfrey	49, Leicester Square, W.C.
Gurdon, Sir William B., C.B., K.C.M.G. ..	The Treasury, S.W.
Hackshaw, T.	Indo-European Telegraph Company, Teheran, Persia.
Hager, C. W.	Messrs. Siemens Bros. & Co., Woolwich, S.E.
Hall, Walter	6, Pier Road, Erith.
Hamilton, A. C., Major, R.E.	Aldershot.
Hamilton, F. A.	Halifax Club, Halifax, Nova Scotia.
Hamilton, W. Tighe	The Orchards, Palmerston Park, Dublin.
Harben, Alfred	3, Melita Villas, Victoria Road, Charlton, S.E.
Harborow, Henry	Bedford House, Lordship Lane, Wood Green, N.
Hardwick, W.	Indo-European Government Telegraphs, Persia.
Harrison, Hugh E., B.Sc.	Hammond Company's Electrical Engineering College, 2, Red Lion Square.
Harrison, R. H.	Highfields, Ware, Herts.
Harrison, Thos.	Postal Telegraphs, Newcastle-on-Tyne.
Hasdell, H. D.	Post Office Savings Bank, Queen Victoria Street, E.C.
Haskayne, Henry	67, Christopher Street, Burley Road, Leeds.
Hassard, H. S. Captain	2nd Battalion Berks Regiment, New Barracks, Gosport, Hants.
Hawker, E. C. T., Lieut., R. E.	H.M.S. "Hood," Chatham.
Heath, E. F.	The Beeches, Norwich.
* Heaviside, O.	3, St. Augustine's Road, N.W.
Hebbert, Ernest G.	18, Calverley Park, Tunbridge Wells.
Henley, George	47, Drayton Park, Highbury, N.
Henry, Robert	The Electric Telegraph Department, Hobart, Tasmania.
Heraghty, G. J.	Eastern and South African Telegraph Company, Lourenço Marques, Delagoa Bay.
Herne, Robert	Direct United States Cable Company, Rye Beach, New Hampshire, U.S.
Hesse, Frederick E.	Secretary, Eastern Extension Telegraph Company, 66, Old Broad Street, E.C.
Hewett, John S.	The Indian Government Telegraph Department.
* Hill, Joseph Tripp	Postal Telegraphs, G.P.O., E.C.
Hill, Thomas	Postal Telegraphs, Telegraph Street, E.C.
Hilliard, Augustus	Marine Hotel, Tidal Basin, Victoria Dock.
Hiscott, A. B.	Télégrafos (La ciudad), Mexico.
Hitchcock, H. L.	Eastern Telegraph Company, Quinta Nova, Carcavellos, Lisbon.
Hockley, T. T.	Indo-European Telegraph Department, Kurrachee.
Hogge, R.	Western and Brazilian Telegraph Company, Caixa 76, Rio Grande do Sul, Brazil.
Holmes, George	Eastern Telegraph Company, Malta.
Holt, John S.	United Telephone Company, 36, Coleman Street, E.C.
Hookey, James	Postal Telegraphs, General Post Office, E.C.
Hooper, Rev. Samuel F., M.A.	17, Lorrimore-square, Walworth, S.E.
Huggins, James	Ferro Carril del Sud, Buenos Ayres.
Humble, George	Postal Telegraphs, Newcastle-on-Tyne.
Howard, Frank	Oaklands, Cricklewood, N.W.
Hill, H., C.E.	Hammond Electric Light and Power Company, 110, Cannon Street, E.C.
Imray, Harold	Sedgemere, East End, Finchley, N.
Irminger, Frederick	Great Northern Telegraph Company, Hong Kong, China.
Ismay, J.	Haddon Villa, 26, Trafalgar Road, Egremont, Birkenhead.

Digitized by Google

Jackson, R. Raynsford, Colonel	Ashurst, West Hill, Sydenham, S.E.
James, C. S.	Indian Government Telegraph Department.
Jebb, J. Gladwyn	
Jeffery, James	The Direct Spanish Telegraph Company, 25, Church Street, Falmouth, Cornwall.
Jobson, Howard C.	Dudley.
Joel, H. F.	44, Lavender Grove, Dalston, E.
Johnstone, Thomas Y.	Persian Gulf Telegraphs, Fao Station.
Jones, James Haig D.	Eastern Extension Telegraph Company, Penang.
Jones, John Rymer	22, Castletown Road, West Kensington, W.
Jones, Reginald J.	36, Leconfield Road, Canonbury, N.
Jones, W. O.	17, Bolton Gardens, South Kensington, S.W.
Jones, Sydney L.	Eastern Telegraph Company, Syria, Greece.
Joseph, R. E.	Australian Electric Company, Melbourne, Victoria, Australia.
Keith, F. Macrae	Engineers' Department, General Post Office, Edinburgh.
Kenney, F., Sergeant-Major, R.E.	Postal Telegraphs, Walpole Street, New Cross, S.E.
Kidd, J. C.	Indian Government Telegraphs, Calcutta.
Kierzkowski-Steuart, Charles F. de, M. Inst. C.E.	7, Collingham Road, Cromwell Road, S.W.
King, Joseph T.	Compania Telegrafico del Rio de la Plata, Buenos Ayres.
King, W. F., F.R.S.E.	Lonend, Trinity, Edinburgh.
Kingsford, H.	Anglo-American Telegraph Company's s.s. "Minia," Nova Scotia.
Kingsland, Wm.	32, Harold Street, Holland Road, Brixton, S.W.
Kirby, George J.	Cape Telegraphs, Port Elizabeth.
Knight, H. P., Lieut. R.E.	Shaftesbury Villa, Brockhurst, Gosport.
Krause, Rudolph H.	Edison-Gower-Bell Telephone Company, 6, Lombard Street, E.C.
Lachlan, William	c/o Messrs. Lachlan, Dry Hill, Tonbridge.
Lalonde, E. L.	Blenheim House, Humber Road, Westcombe Park, Blackheath, S.E.
Lamb, J. C.	Postal Telegraphs, General Post Office, E.C.
Langman, Alfred	Postal Telegraphs, Cambridge.
Lapham, G. W., Sergt., R.E.	8, St. Leonard's Terrace, Mount Radford, Exeter.
Laurie, E. H.	16, Blandford Square, N.W.
Lawson, Ed. G.	Superintendent, Brazilian Submarine Telegraph Company, St. Vincent, Cape de Verde.
Lecoat, E. J.	The Eastern Telegraph Company, Bona, Algiers.
Leonard, W.	South Eastern Railway Telegraphs, London Bridge.
Lepelley, C. A.	Submarine Telegraph Company, Threadneedle Street, E.C.
Lessels, David	c/o Mr. J. Cowans, Inspector, Post Office Telegraphs, Glasgow.
Livingston, James	467, New City Road, Glasgow.
Loam, John	The Indo-European Telegraph Department, Jask, Persian Gulf.
Logan, James K.	Inspector of Telegraphs, Dunedin, New Zealand.
London, Robert	84, Tyrwhitt Road, Lewisham High Road, New Cross, S.E.
Lopez, Eustace J.	Indian Government Telegraphs, Calcutta.
Lovey, A. Féri	20, The Common, Woolwich, S.E.
Lowe, M. H.	64, Imperial Buildings, Ludgate Circus, E.C.
Lowe, Thomas	8, Great Winchester Street Buildings, E.C.
Lucas, F. R.	Park Lodge, Hervey Road, Kidbrook, S.E.
Lyne, C.	Indo-European Government Telegraphs, Persia.
Lyster, W. G.	Post Office, Reading.
MacCann, R. L.	34, Edith Grove, Chelsea, S.W.
MacDonald, J. H. A., Q.C.	15, Abercromby Place, Edinburgh.
MacClure, J. H.	Beaconsfield Club, Marlborough Gate, Pall Mall, S.W
MacDonnell, A. C., Lieut., R.E.	c/o Messrs. Cox & Co., Agents, London.
MacKenzie, J. Kenneth D.	27, Sussex Gardens, Hyde Park, W.
MacWhirter, W.	Messrs. Norman & Son, Barrow-in-Furness.
Madgen, William L.	National Telephone Company, 3, High Street, Belfast.
Markham, Thomas Thornhill	102, Fetter Lane, E.C.

Digitized by Google

Marsh, H.	3, Windsor Terrace, Buckland, Dover.
Mason, William B.	Telegraph Department, Nagasaki, Japan.
Massey, W. H.	Twyford, Berks.
Mathews, Henry M. S.	Indian Government Telegraphs.
Matthias, R.	Indo-European Telegraph Company, Persia.
May, Joseph	Telegraph Construction and Maintenance Company, Enderby's Wharf, East Greenwich.
McGauran, D. J.	Manager Telegraph Office, Albury, New South Wales.
McKinney, Alexander	Postal Telegraphs, Manchester.
McLean, Donald	Postmaster, Oban, Scotland.
McLean, James	2, Ovington Square, S.W.
Mehrtens, John	Percy Cottage, Pellatt Grove, Wood Green, N.
Michael, Wm. H., Q.C.	4, King's Bench Walk, Temple, E.C.
Middleton, J. E.	Inspector of Telegraphs, Transkie, South Africa.
Miller, Leslie B.	34, Darnley Road, Hackney, E.
Moffatt, Alexander C.	26, College Street, Dowgate Hill, E.C.
Moll, Oscar	Direct United States Cable Company, 53, Old Broad Street, London.
Moon, William	67, Moray Road, Tollington Park, N.
Moore, C. W.	3, High Street, Belfast.
Morgan, Charles Amiss	Postal Telegraphs, General Post Office, E.C.
Morgan, F.	Postal Telegraphs, General Post Office, E.C.
Morrison, G. J., C.E.	c/o Messrs. Jardine, Matheson & Co., Shanghai.
Morrison, G., Serjeant-Major, R.E.	Postal Telegraphs, Victoria Street, Bristol.
Moseley, Charles	Chapel Field Works, Ardwick, Manchester.
Mudford, F. J.	European Telegraph Works, Pownall Road, Dalston, N.
Mummery, J. Howard, M.R.C.S.	10, Cavendish Place, W.
Munro, John	4, Montague Road, West Croydon.
Murphy, Charles J.	3, Circus, Tower Hill.
Musgrove, H. M.	Messrs. Norman & Son, Barrow-in-Furness.
Mygind, John	Great Northern Telegraph Company, Newcastle-on-Tyne
Naylor, J. E.	Postal Telegraphs, Leeds.
Needham, R. J.	Anglo-American Telegraph Company, Duxbury, Mass., U.S.
Nevett, F. W.	
Newbury, George C.	Postal Telegraphs, General Post Office, E.C.
Newman, A. E.	Compania Telegrafico del Rio de la Plata, Monte Video.
Newnham, W. A.	Indo-European Government Telegraphs, Jask, Persian Gulf.
Nicholson, James	Campania Telegrafico del Rio de la Plata, Monte Video
Nunn, Thomas William	8, Stratford Place, W.
Oakshott, A.	Postal Telegraphs, Southampton.
Oatway, Arthur	Postal Telegraphs, General Post Office, E.C.
O'Donnel, C. E.	The Indian Government Telegraph Department.
Ogg, F. William	11, Barclay Terrace, Leystonstone, Essex.
O'Haire, J. M.	Government Telegraphs, Cape of Good Hope.
Orchiston, J.	Telegraph Department, Auckland, New Zealand.
Orme, J.	65, Barbican, E.C.
Owen, Fritz Cunliffe	Anglo-American Brush Electric Light Corporation, 74, Hatton Garden, E.C.
Page, Alfred S.	India-Rubber Company, Silvertown.
Page, Charles J.	c/o Mr. C. Page, 2, St. Ann's Terrace, Love Lane, Wandsworth.
Parmiter, Albert	Postal Telegraphs, Gloucester.
Parsons, The Hon. Richard	Airedale Foundry, Leeds.
Paul, A. J. E.	Eastern Telegraph Company, Bona, Algiers.
Paul, A. L.	16, Kensington Square, W.
Patey, Charles H. B. (*Associate Member of Council.*)	The Cedars, Bickley.
Patten, Frederick A.	c/o Messrs. Grindlay & Co., 55, Parliament Street, S.W.
Payn, John J.	Eastern Telegraph Company, Marseilles.
Payton, William	66, Old Broad Street, E.C.
Penning, J. Roper	14, Norfolk Street, Southsea.

Digitized by Google

Penton, E. Jun.,	1, Mortimer Street, W.
Perkins, E. J.	
Penrose, Cooper, Lieut., R.E.	Bank Hotel, Pembroke Dock, Pembrokeshire.
Perry, F.	Anglo-American Telegraph Company, Heart's Content, Newfoundland.
Peters, Alfred	Western and Brazilian Telegraph Company, Bahia.
Peterson, Oscar F.	Messrs. Siemens Bros. & Co., Charlton, S.E.
Philipps, W. Rees	c/o H. Rees Philipps, Esq., M.A., India Office, S.W.
Phillips, C. H.	16, Greenwood Terrace, St. John's Church Road, Hackney, E.
Picken, William	2, Mardale Parade, Gateshead.
Pierce, Edwin	Persian Gulf Telegraphs, Gwadur, Persian Gulf.
Portelli, Robert	Eastern Telegraph Company, Malta.
Porter, Charles	93, Balfour Road, Highbury New Park, N.
Price, H. N. Blackwood	Trieste-Corfu Telegraph, Via Carintia, 12, Trieste.
Probert, J.	Postal Telegraphs, Moorgate Street Buildings, E.C.
Puget, Colonel Granville W.	34th Regiment, Ferozepore, India.
Pyne, Spree Bollychand	Indian Government Telegraphs, Calcutta.
Quick, James	Royal Arsenal Science Schools, Woolwich, S.E.
Rathborne, H. H.	Eastern Telegraph Company, Trieste, Austria.
Raymond, George	Eastern Telegraph Company, Tenedos, Turkey.
Reynell, C. H.	Brazilian Submarine Telegraph Company, Madeira.
Rich, H. R.	Indian Government Telegraphs, Calcutta.
Richards, A., Sergeant, R.E.	Canterbury.
Richardson, Captain A. H.	Eastern Telegraph Company, 66, Old Broad Street, E.C.
Richardson, H.	Postal Telegraph, Douglas, Isle of Man.
Rickards, Frederick T.	Harberton Lodge, 3, St. Nicholas Road, Upper Tooting.
Riemenschneider, Fredk. W. C.	Great Northern Telegraph Company, Libau, Russia.
Rippon, J.	India-Rubber Company, Silvertown, E.
Roberts, Martin F., F.C.S.	Postal Telegraphs, Gloucester Road, N.W.
Rogers, F. M.	29, Moorgate Station Buildings, E.C.
Rogers, G. F.	5, Great Winchester Street Buildings, E.C.
Rope, L. W.	Anglo-American Telegraph Company, Brest.
Ross, John	Caersers Cottage, Kings Street Road, Aberdeen.
Ross, Walter O.	West India and Panama Telegraph Company, St. Thomas, West Indies.
Rowe, Thomas	Pointsman Inn, Whitelands Road, Staleybridge.
Ruddle, Mark	Edison Electric Light Company, 19, Victoria Buildings, Manchester.
Rushton, William S.	General Post Office, E.C.
Russell, Frank	5, Trafalgar Court, Brighton.
Sale, M. T., Major, R.E., C.M.G.	Yarmouth, Isle of Wight.
Sandeman, Colonel J. G.	24, Cambridge Square, W.
Saunders, J. B., Junior	Messrs. J. B. Saunders & Co., Cardiff.
Sax, Julius	108, Great Russell-street, W.C.
Scaife, James	Relay Office, Postal Telegraphs, Haverfordwest.
Schaefer, Louis	Eastern Telegraph Company, Malta.
Scotland, James	Anglo-American Telegraph Company, St. Pierre, Newfoundland.
Scott, J. H.	Nutsford Vale Rope and Wire Works, West Gorton, near Manchester.
Segrave, William	Eastern Extension Telegraph Company, Flinders, Victoria, Australia.
Sellon, John S.	The Hall, Sydenham, S.E.
Sennett, Alfred R.	Seacroft, West Worthing.
Sharples, C. H., F.G.S.	7, Fishergate, Preston.
Shaw, Lieut.-Col. W.	Darmstadt.
Shenton, F.	109, Eversleigh Road, Lavender Hill, S.W.
Shepherd, F.	Postal Telegraphs, Moorgate Street Buildings, Telegraph Street, E.C.
Shorrock, L.	Eastern Extension Telegraph Company, Bolinao, near Manilla.
Simmons, Charles J.	56, Leverton Street, Kentish Town, N.W.
Simpson, George	Indian Government Telegraphs, Mannar, Ceylon.

Digitized by Google

Simpson, G. P., B.Sc.	Messrs. Siemens Bros. & Co., 12, Queen Anne's Gate, Westminster, S.W.
Slater, William	Western & Brazilian Telegraph Company, Para, Brazil.
Smibert, George	Telegraph Department, Melbourne.
Smith, A.	Indo-European Government Telegraphs, Persia.
Smith, F. J.	Mary Street House, Taunton.
Smith, John	Inspector of Telegraphs, Cape Town.
Smith, Frederick	Caledonia Iron Works, Halifax, Yorkshire.
Smith, A. Toulmin	Selborne Chambers, Chancery Lane.
Smith, W. O.	Messrs. Elliott Bros., 101, St. Martin's Lane, W.C.
Somerville, George J.	134, Buccleuch Street, Glasgow.
Spagnoletti, J. E.	The Poplars, Aberdeen Place, Maida Hill, N.W.
Spratt, G. O.	Eastern Telegraph Company, Porthcurno, Penzance.
Squier, J. E.	Eastern Extension Telegraph Company, Hong Kong.
Squires, Frederick	Anglo-American Telegraph Company, Brest.
Squires, George	Anglo-American Telegraph Company, St. Pierre, Newfoundland.
Stacey, George B.	Eastern Telegraph Company, Bombay.
Stanford, W.	Telegraph Department, Cape Town.
Starke, Henry	Government Telegraph Department, Brisbane, Queensland.
Steet, G. C., F.R.C.S.	130, King Henry's Road, Hampstead.
Stevens, Frederick P.	Port Darwin, South Australia.
Stevens, Henry	Port Darwin, South Australia.
Stevenson, Ed. Alf.	Telegraph Construction and Maintenance Company, Enderby's Wharf, East Greenwich, S.E.
Stevenson, George	Eastern Telegraph Company, Alexandria, Egypt.
Stewart, D.	Postal Telegraphs, Glasgow.
Stingo, W.	Central Telegraph Office, St. Martin's-le-Grand, E.C.
Stockdale, Lawson	Telegraph Department, L. & N. W. Rly. Co., Preston,
Stokes, Henry L. S.	15, Hollywood Road, West Brompton, S.W.
Stone, William H.	Department of Public Works (Telegraphs), Tokio, Japan.
Stopford, Major J. G. B.	Junior Carlton Club, Pall Mall, S.W.
Stout, Robert	Postmaster, Lerwick, Shetland Isles.
Straube, Albert A. L.	12, Queen Anne's Gate, Westminster, S.W.
Stringer, E. B.	101, St. Martin's Lane, W.C.
Strauss, Frederic	Emden, Hanover.
Stuart, J. D. B.	French Cable Company, North Eastham, Cape Cod, Mass., U.S.A.
Sullivan, Herbert W.	29, Ladbrook Square, W.
Swemmer, B.	Government Telegraphs, King William's Town, Cape of Good Hope.
Tansley, William	Postal Telegraphs, Portarlington.
Tapp, George R.	18, Queen Margaret's Grove, Mildmay Park, N.
Tasker, J.	Telephone Exchange Company, Angel Street, Sheffield.
Tasker, W. H.	Milford, Godalming.
Taylor, Frank A.	Eastern and South African Telegraph Co., ss. "Great Northern," Zanzibar.
Taylor, Henry	Coatzacoalcos, c/o F. T. Van Valkenburg, Esq., Mexican Telegraph Company, Vera Cruz, Mexico.
Taylor, William Grigor	Eastern Extension Telegraph Company, Sydney.
Teale, Walter	Hassop, Bakewell, Derbyshire.
Thwaites, James	25, St. John Street Road, Clerkenwell, E.C.
Theiler, Richard	86, Canonbury Road, N.
Thomas, G.	Brazilian Submarine Telegraph Co., Pernambuco.
Thompson, F. O.	Direct United States Cable Company, 53, Old Broad Street, E.C.
Thompson, Harold Lyon	74, Onslow Gardens, S.W.
Thomson, John H. S.	United Telephone Company, 36, Coleman Street, E.C.
Thornton, F.	Messrs. Clark, Muirhead & Co., 29, Regency Street, Westminster, W.C.
Tilly, G. B.	Eastern Telegraph Company, Gibraltar.
Tonking, Richard	78, Lorne Terrace, Annandale Road, East Greenwich, S.E.
Topping, F. W.	Direct United States Cable Company, Ballinskelligs.

Digitized by Google

Tranfield, F. T.	Anglo-American Telegraph Company, Valentia, Ireland.
Trippe, C.	Anglo-American Telegraph Company, Heart's Content, Newfoundland.
Trott, Samuel	Anglo-American Telegraph Company's s.s. "Minia," Halifax, Nova Scotia.
Tubb, Albert	Postal Telegraphs, Southampton.
Tuck, W.	Eastern Telegraph Company, Suez, Egypt.
Tuffield, T. S.	Agencia de l'Empress, Telegrapho Submarine, Arica, Peru.
Tunbridge, W. T.	London and North-Western Railway, Stafford.
Turner, W.	31, Malpas Road, Lewisham High Road, S.E.
Tyler, Lieut., H. E., R.E.	Halifax, Nova Scotia.
Tyler, W. J.	106, Cannon Street, E.C.
Upton, Henry	Marlborough Club, Pall Mall, S.W.
Uren, George G.	Eastern Extension Telegraph Company, Penang, Straits Settlements.
Urquhart, David	4, The Sanctuary, Westminster, S.W.
Vane, Frederick W.	General Post Office, Colombo, Ceylon.
Varley, Cromwell O.	10, St. Peter's Street, Ipswich.
Venndt, C. F.	Great Northern Telegraph Company, 119, Bishopsgate Street Within, E.C.
Vere de Vere, Arthur	Eastern Telegraph Company, Constantinople.
Verney, Captain, R. N.	Rhianva, Bangor, North Wales.
Vesey, Arthur H.	"The Grange," Knockholt, Kent.
Volk, Magnus	40, Preston Road, Preston, Brighton.
Von Donop, P. G., Lieut., R.E.	31, Park Street, Bath.
Vyle, Samuel	22, Borough Road, Middlesborough.
Walduck, Charles E.	148, Gresham House, E.C.
Walker, William K.	Superintendent, Darjeelin Himalayan Railway, Tendaria.
Walrond, T. C. T.	11, Rockley Road, West Kensington Park, W.
Warner, R. A...	Cassilla, No. 777, Buenos Ayres.
Warren, J. D.	1, Harwood Road, Walham Green, S.W.
Warren, William *(Honorary Secretary for Tasmania).*	George Town, Tasmania.
Watkin, H., Capt., R.A.	Royal Gunpowder Factory, Waltham Abbey, Essex.
Watson, C. M., Capt., R.E.	Store Department, India Office, S.W.
Weatherall, T. E.	Telegraph Construction and Maintenance Company. Greenwich.
Weaver, A. C. M.	Eastern Extension Telegraph Company, Singapore.
Webb, F. H. *(Secretary).*	9, Bernard Street, Regent's Park Road, N.W.
Webber, T. B.	Telegraph Department, Great Western Railway Company, Plymouth.
Webster, J. K.	Anglo-American Telegraph Company, Brest.
Weedon, E.	Anglo-American Telegraph Company, Heart's Content, Newfoundland.
White, Arnold	Edison Electric Light Company, 74, Coleman Street, E.C.
White, F. H.	Anglo-American Telegraph Company, St. Pierre, Newfoundland.
Whitmore, Mortimer, Captain, R.E.	Postal Telegraphs, Walpole Street, New Cross, S.E.
Whitaker, J. E.	Inspector, Lancashire and Yorkshire Railway, Halifax.
Whittingback, C. H., Sergt., R.E.	Indo-European Government Telegraphs, Sivand, Persia.
Wigan, Gordon	Savage Club, Saville Row, S.W.
Wilde, Edwin	Postal Telegraphs, Doncaster.
Wilkinson, Henry D.	79, Mildmay Road, N.
Williams, A. G.	Anglo-American Telegraph Company, Heart's Content, Newfoundland.
Williams, J.	Indo-European Government Telegraphs, Persia.
Willmot, T. J.	Direct United States Cable Company, Rye Beach, U.S.
Wilson, H. C.	Superintendent of Government Telegraphs, Kingston, Jamaica.
Windeler, Henry	Anglo-American Telegraph Company, Valentia, Ireland.
Winter, C. E.	Upton Cressett Rectory, Bridgnorth.
Wisely, G. A. K., Lieut., R.E.	Government House, Nicosia, Cyprus.

Digitized by Google

Wood, Major Alexander	Abbey Wood, Kent.
Woodcock, W.	Anglo-American Telegraph Company, Heart's Content, Newfoundland.
Woods, James W.	Engineering Department Postal Telegraphs, Oxford.
Wright, Arthur	66, Grand Parade, Brighton.
Wright, James	Messrs. Siemens Bros. & Co., 12, Queen Anne's Gate, S.W.
Wright, Thomas	The Eastern Telegraph Company, Malta.
Yeates, Horatio	33, King Street, Covent Garden, W.C.

Total Number of Associates 532

STUDENTS.

Ansell, Harold W.	Kildermorie, Merton Road, Wimbledon, S.W.
Barclay, L. D.	33, Culford Road, Downham Road, Dalston, N.
Brackett, Arthur Wm.	21, London Road, Tunbridge Wells.
Bright, Charles	31, Golden Square, W.
Brooks, Edwin M.	2008, Chestnut Street, Philadelphia, U.S.A.
Davies, George L.	
Dimier, Paul	King's College, Strand, W.C.
Erichsen, C. C.	Grove Cottage, Upper Tooting, S.W.
Ford, Fredric. William	98, Carsland Road, South Hackney.
Hancock, William J. Junr.	23, Synnot Place, Dublin.
Kennelley, A. E.	Eastern Telegraph Company, 66, Old Broad Street.
Lewis, Robert	"Fairlight," Anerley, Surrey.
MacCarthy, C. C.	National Telephone Company, 38, Frederick Street.
Scott, Montague J.	16, Church Row, Hampstead, N.W.
Stallibrass, Edward	31, Golden Square, W.
St. George, A. F.	Montague Villa, Redhill, Surrey.
Stuart, E.	29, Cornwall Gardens, S.W.
Shadwell, J. D.	31, Golden Square, W.

Total number of Students 18

TOTAL NUMBER OF MEMBERS.

Honorary Members	5
Foreign Members	172
Members	362
Associates	554
Students	18
Total	1,111

Digitized by Google

EDWIN FOX & COMPANY,

LIMITED.

TELEGRAPH AND FENCING WIRE MANUFACTURERS.

CAPITAL £50,000, in SHARES of £10 EACH.

Directors.

JOHN ELDON GORST, Esq., Q.C., M.P.
HENRY ALCOCK, Esq., Merchant, 8, Drapers' Gardens, E.C.
HORATIO W. CATON, Esq., 413, Mile End Road, E.
GEO. F. ROGERS, Esq., Telegraph Engineer, 5, Great Winchester Street, E.C.
EDWARD J. ROLLS, Esq., Chairman Formby's Cement Works Co., Limited.
EDWIN FOX, Esq., *Managing Director.*

Bankers.

Messrs. BROWN, JANSON & CO., Abchurch Lane, Lombard Street, E.C.

Solicitors.

Messrs. NEWMAN & CO., 8, Drapers' Gardens, E.C.

Auditors.

Messrs. JOHN B. BALL & CO., Chartered Accountants, 1, Gresham Buildings E.C.

Secretary.

Mr. H. T. NELL.

Works:—MILLWALL, E.
Offices:—5, GREAT WINCHESTER STREET, E C.

Digitized by Google

Best Wire for Telegraphs, Telephones & Electrical Purposes.

SPECIAL PHOSPHOR BRONZE WIRE FOR TELEPHONE LINES.

SPECIAL SILICIUM BRONZE WIRE FOR TELEGRAPH LINES.

Great Tensile Strength and High Conductivity.

For Prices and Particulars apply to the Sole Manufacturers under Patents for the United Kingdom, India, and the British Colonies.

THE PHOSPHOR BRONZE COMPANY,

LIMITED.

87, SUMNER ST., SOUTHWARK, LONDON, S.E.

LIST OF

TELEGRAPH & TELEPHONE COMPANIES,

WITH

NAMES OF DIRECTORS,

PARTICULARS OF CAPITAL, TARIFFS,

LENGTH OF CABLES, &c.

CHARLES J. SIMMONS,

(*Sixteen Years with Messrs. ELLIOTT BROS.*)

MANUFACTURER OF ELECTRICAL TEST INSTRUMENTS FOR LAND AND MARINE SERVICE.

CONTRACTOR TO H.M. POSTMASTER-GENERAL.

GALVANOMETERS, RESISTANCE COILS, ELECTROMETERS, CONDENSERS, KEYS, SWITCHES, &c.

56, LEVERTON STREET, LEIGHTON ROAD, LONDON, N.W.

AND AT 32, SOUTHAMPTON BUILDINGS, CHANCERY LANE, W.C.

B. A. Standards with value and co-efficients carefully determined. Resistance Coils for large currents. Special Measuring Instruments for Electric Light Companies.

SIMMONS & PHILLIPS' PORTABLE TESTING BOX,

SPECIALLY DESIGNED FOR ELECTRIC LIGHT ENGINEERS.

See "Telegraphic Journal and Electrical Review" for September 9th, 1882.

Digitized by Google

REUTER'S TELEGRAM COMPANY,

LIMITED,

London Offices: 24, OLD JEWRY, E.C.

Directors:

Colonel JAMES HOLLAND, (*Chairman*).
Admiral the Right Hon. SIR JOHN C. D. HAY, Bart., M.P.
BARON DE REUTER.
JAMES SYDNEY STOPFORD, Esq.
HERBERT DE REUTER, Esq., *Managing Director*.

NOTE.—A Dividend of 7½ per cent., free of Income Tax, has been paid for the year.

TARIFF FOR TELEGRAMS.

LONDON TO INDIA, STRAITS, CHINA, JAPAN, AUSTRALIA, NEW ZEALAND AND SOUTH AFRICA.

	Senders' & Receivers' Names and Addresses, if registerd.	Each additional Word.
	£ s. d.	£ s. d.
India—Bombay, Calcutta and Madras	0 9 0	0 4 7
,, other Stations, Burmah and Ceylon	0 9 6	0 4 10
Penang	0 16 9	0 5 7
Singapore	0 19 3	0 6 5
Java	1 0 0	0 6 10
China	0 16 8	0 8 4
,, Tientsin	0 18 4	0 9 2
Japan	0 18 6	0 9 3
Australia, South Australia, Victoria and Tasmania	1 0 0	0 10 8
,, New South Wales and Queensland	1 0 0	0 10 10
New Zealand	1 0 0	0 11 10
South Africa—		
Mozambique and Delagoa Bay	0 17 8	0 8 10
Natal, Durban	0 15 0	0 8 9
,, Other Stations	0 17 10	0 8 11
Cape Colony, Griqualand West, Transvaal	0 18 2	0 9 1
Orange Free State	0 18 6	0 9 3

LONDON TO SOUTH AMERICA.

	Senders' & Receivers' Names and Addresses, if registerd.	Each additional Word.
	£ s. d.	£ s. d.
Ceara	1 8 0	0 11 1
Pernambuco	0 18 0	0 9 0
Maceio	1 2 0	0 11 0
Maranham	1 12 0	0 12 4
Bahia	1 4 8	0 11 0
Rio de Janeiro	1 7 2	0 11 0
Para	1 7 2	0 13 7
Santos	1 8 0	0 11 3
Rio Grande do Sul, Santa Catarina and Porto Alegre	2 0 0	0 13 8
Monte Video	1 11 4	0 15 8
Other Stations in Uruguay	1 12 2	0 16 1
Buenos Ayres	1 12 8	0 16 4
Other Stations in the Argentine Republic	1 13 8	0 16 10
Valparaiso	2 0 0	0 14 8
Other Stations in Chili	2 5 0	1 1 4
Peru: by Telegraph direct Iquique	2 11 0	1 5 6
Arica and Tacna	2 15 0	1 7 0
Islay, Mollendo, Arequipa and Pisco	3 0 0	1 9 6
Callao and Lima	1 15 0	0 11 0
Do. Post Panama	2 4 0	0 10 0

* To *Unregistered* Senders this charge is made for the first word of the Senders' and Receivers' Names and Addresses, the other words being chargeable at the rate for each additional word.

Telegrams are accepted subject to the Rules of the London Telegraph Convention.
Words exceeding 10 letters are charged as two words each. Every three figures in a group count as one word.

NOTE.—Telegrams for Peru must be marked with the route by which they are to be sent.

Passengers can have their arrival announced by Telegraph to their relatives or others at home at the following rates, viz.:—

INDIA & CEYLON. 12/- STRAITS, CHINA, JAPAN, AUSTRALIA, NEW ZEALAND & SOUTH AFRICA. £1 0 0

FREDERICK J. GRIFFITHS,
SECRETARY.

Digitized by Google

ANGLO-AMERICAN TELEGRAPH COMPANY, LIMITED.

OPENING OF TELEGRAPHIC COMMUNICATION

WITH

CENTRAL & SOUTH AMERICA

VIA

The United States, Mexico, and the Cables of the Central and South American Telegraph Co.

TARIFF.

—:o:—

CENTRAL AMERICA.

To Places situated in the following States, &c.	Price per word. s.	d.
SALVADOR—		
Libertad	5	2
All other places	5	4
GUATEMALA	5	4
HONDURAS	5	4

To Places situated in the following States, &c.	Price per word. s.	d.
NICARAGUA—		
San Juan del Sur	6	2
All other places	6	4
COSTA RICA	6	4
ISTHMUS OF PANAMA—		
Panama } *vid* Galveston	7	8
Colon } *vid* Galveston	7	11

Messages to be forwarded to Panama and Colon by this route must be marked *vid* Galveston,

SOUTH AMERICA.

	s.	d.
COLUMBIA—		
Buenaventura	8	4
All other places	8	6
VENEZUELA	8	8
ECUADOR	9	4
PERU—		
Payta	10	0
Callao } Lima	11	0
Mollendo	12	3
Arica	12	5
Iquique	12	8
All other places	13	1
BOLIVIA—		
Antofagasta	13	3
CHILI—		
Caldera	13	6
Serena	14	1
Valparaiso, and all other places	14	8

	s.	d.
ARGENTINE REPUBLIC—		
Buenos Ayres	16	4
All other places	16	9
URUGUAY—		
Montevideo		
All other places		
BRAZIL—		
Rio Grande do Sul		
Santa Catarina		
Santos		
Rio de Janeiro		
Bahia		
Pernambuco		
Fortaleza		
Maranham		
Para		
All other places		

Revised Rates to Mexico.

	s.	d.
Matamoras	2	9
Tampico	3	7
Vera Cruz	4	0
Mexico City and all Government Stations	4	2
Goatzacoalcos	4	7
All other places	4	9

Revised Rates to Isthmus of Panama, via the West Indies.

Panama	7*s.* 8*d.*
Colon	7*s.* 11*d.*

Messages to Panama and Colon are forwarded *vid* the West Indies, unless specially directed by any other route.

General Offices of the Company :—

26, OLD BROAD STREET, LONDON, E.C.

Digitized by Google

THE EASTERN TELEGRAPH CO., LIMITED,

66, OLD BROAD STREET, E.C.

STATIONS:—

LONDON—11, OLD BROAD STREET, E.C.; 8, LEADENHALL STREET;

AND

3, GREAT TOWER STREET;

AND

MANCHESTER—20, Brown Street. *LIVERPOOL—H 5, Exchange.*

CAPITAL.

£3,800,000, in 380,000 Shares of £10 each, fully paid.
£700,000, 6 per cent. Preference Shares of £10 each.
£232,000, 6 ,, Debentures to bearer, repayable 1883.
£450,000, 5 ,, ,, ,, ,, 1887.
£200,000, 5 ,, ,, ,, ,, 1899.

Directors:

JOHN PENDER, Esq., M.P., *Chairman.*
THE MOST HONOURABLE THE MARQUIS OF TWEEDDALE, *Vice-Chairman.*
JOHN DENISON PENDER, Esq.
GEORGE G. NICOL, Esq.
LORD ALFRED PAGET.
LORD SACKVILLE A. CECIL.

Official Director appointed by H.M. Treasury:

CHARLES W. STRONGE, Esq., C.B.

Managing Director:

SIR JAMES ANDERSON.

Secretary:

Mr. GEORGE DRAPER.

Maps and Books of Forms and Tariffs forwarded post-free on application at the Company's Chief Offices as above, or at

69, St. VINCENT STREET, GLASGOW; 28, RUE CAUMARTIN, PARIS; and 2, BOULEVARD DU MUY, MARSEILLES.

Digitized by Google

THE EASTERN TELEGRAPH COMPANY, LIMITED.

Rate per Word from any Station in the United Kingdom to:—

	s.	d.
Egypt—Alexandria	1	7
,, 1st Region, including Cairo, Suez, Port Said, and Canal Stations	1	10
,, 2nd Region (Upper Egypt)	2	0
Cyprus—All Stations	1	7
Djeddah (when opened for Traffic)	3	11
Aden	3	9
Africa—Zanzibar	7	9
,, Mozambique and Delagoa Bay	8	10
,, Natal, Durban	8	9
,, ,, Other places	8	11
,, Cape Colony, Griqualand West and Orange Free State	9	1
India—Bombay, Calcutta and Madras	4	7
,, Other Stations West of Chittagong	4	7
,, Stations East of Chittagong	4	10
,, Rangoon and British Burmah, *vid* Penang*	7	4
Persia—*vid* Malta	2	5
,, *vid* India	5	9
Native Burmah	5	1
,, ,, *vid* Penang	7	6
Ceylon	4	10
Penang	5	7
Malacca	6	3
Singapore	6	5
Cochin China	7	3
China—Hong-Kong, Amoy, Shanghai, and Gutzlaff	8	4
,, Other Stations†	9	7
Manila	10	0
Japan—All Stations	12	2
Java and Sumatra, all Stations	6	10
Australasia—South Australia	10	8
,, West Australia	10	8
,, Victoria	10	8
,, New South Wales	10	10
,, Tasmania	10	8
,, Queensland	10	10
,, New Zealand	11	10

* When Indian Government Burmese land lines are not working well.

Postage chargeable from Madeira, St. Vincent, and from South America, 1s.; from all other places, 1s. 6d.. in addition to the ordinary rates.

† Telegrams can be sent to Pekin by post from Tientsin, postage 10d. per message, plus the rate to Tientsin.

Tariff per Word, for Messages to Madeira, St. Vincent and South America, from any Station in Great Britain and Ireland to:—

	£	s.	d.
Madeira	0	1	7
St. Vincent	0	4	0
South Africa, *vid* Madeira—All places when Telegram posted direct to destination	0	1	8
Ditto do. Cape Colony and Griqualand	0	1	10
Ditto do. Natal and Orange Free State	0	4	5
South Africa, *vid* St. Vincent—All places when Telegram posted direct to distination	0	4	1
Ditto do. Cape Colony	0	4	3
Ditto do. Natal and Orange Free State	0	4	5
Brazil—Pernambuco	0	9	0
,, Fortaleze (Ceara)	0	11	1
,, Bahia and Maranham	0	12	4
,, Rio de Janeiro and Para	0	13	7
Brazil—Santos, Maldonado, Santa Catarina and Rio Grande Do Sul	0	15	8
,, All other Stations	0	16	1
Uraguay—Monte Video	0	15	8
,, All other Stations	0	16	1
Argentine Republic—Buenos Ayres	0	16	4
,, ,, All other Stations	0	16	9
Chili—Valparaiso and all other Stations	0	14	8
Peru—Iquique	1	0	6
,, Arica and Tacna	1	2	0
,, Mollendo, Isla, Puno and Arequipa	1	3	6
,, Lima and Callao	1	6	6
Bolivia—Antofagasta	1	4	4

Messages for the Cape of Good Hope.

When Mail Steamers are advertised to call at Madeira or St. Vincent, Messages for South Africa can be accepted and forwarded by Post to Cape Town for onward transmission to the nearest Colonial Telegraph Office, whence they are delivered by messenger, or posted to destination. Telegrams are, however, generally sent direct by the Eastern and South African Company's Cable, the Tariff by which Route is given above.

Tariff per Word, for European Telegrams from Great Britain to:—

	s.	d.
Algeria and Tunis, *vid* Malta	1	0
France and Corsica ,,	1	2
Gibraltar. By direct Cable	0	6½
Tripoli	1	4
Italy and Sardinia, *vid* Malta	1	0
Malta. By direct Cable	0	8
Portugal. By direct Cable	0	6½
Spain, *vid* Vigo—direct Cable	0	6
,, *vid* Gibraltar	0	8½
Greece, Mainland, *vid* Malta and Zante	1	3
Greece, Corfu	1	2
,, Zante, Ithaca, Spezzia, Hydra, Cephalonia, Santa Maura, Tinos, Andros & Kythnos	1	4
,, Syra	1	5
Turkey (Seaports), *vid* Malta and Zante	1	5½
,, (Inland)	1	8
,, Rhodes, Mitylene and Samos	1	7
,, Crete	1	8
,, Scio (Chios)	1	8½

Postage from Portugal to places out of Europe	...	10d.	
Ditto Malta do.	do.	...	1s. 6d.
Postage from Gibraltar to Morocco	...	...	free
Ditto do.	to other places out of Europe		1s. 6d.

Telegrams for Turkey.

Messages are accepted for transmission at the single word tariff, by any of the following routes:—

1. *Vid* Gibraltar, Malta, Alexandria, Syria, Tenedos, and Constantinople.
2. do. do. do. and Elarich.
3. do. do. do. Bombay and Fao.

From LONDON, per Word,	Route 1. £ s. d.	Route 2. £ s. d.	Route 3. £ s. d.
To Crete (all Stations) and Rhodes	0 1 11	0 2 8	0 5 7
,, Turkey in Europe and Islands	0 2 0	0 2 8	0 5 7
,, Turkey in Asia (1st Region)	0 2 3	0 2 3	0 5 2
,, ,, ,, (2nd ,,	0 2 5	0 2 5	0 5 4

Messages for Greece and Turkey by the Eastern Company's Levantine Cables are also accepted at all the Postal Stations, if ordered "*Vid TRIESTE-ZANTE*" or "*ZANTE direct*," at the following rates from London or the provinces:

	s.	d.
Greece—Mainland	0	7½
,, Corfu	0	7½
,, Zante, Ithaca, Hydra, Cephalonia & Santa Maura	0	8½
,, Syra	0	9½
,, Tinos, Andros, and Kythnos	0	9
Turkey—Seaports	0	10½
,, Inland	1	1½
,, Chio	0	8½
,, Samos, Rhodes and Mitylene	1	0
,, Cyprus	1	0½
,, Crete	1	1½

Digitized by Google

THE

INDO-EUROPEAN TELEGRAPH COMPANY,

LIMITED,

18, OLD BROAD STREET, LONDON, E.C.

Official Directors:

HERR BUDDE, Director-General of Telegraphs of the German Empire.
GENERAL VON LÜDERS, Director-General of Imperial Telegraphs in Russia.
H. WEAVER, Esq.

Directors:

COLONEL JAMES HOLLAND *(Chairman)*, The Park, Upper Norwood.
A. DELBRÜCK, Esq., Berlin.
C. W. EARLE, Esq., Bryanstone-square.
JOHN BERENBERG GOSSLER, Esq., Hamburg.
H. H. MEIER, Esq., Bremen.
MAJOR-GENERAL G. B. TREMENHEERE, R.E., Spring Grove, Isleworth.
J. HERBERT TRITTON, Esq., 54, Lombard St., E.C.
H. WEAVER, Esq., 26, Old Broad Street, E.C.

Consulting Member:

C. W. SIEMENS, Esq., F.R.S., D.C.L., 12, Queen Anne's Gate, Westminster.

Managing Director:

W. ANDREWS, Esq.

Accountant and Secretary:

F. MOLL, Esq.

TARIFF.

From London and the Provinces, per Word, to

	s.	d.
Turkey—		
Constantinople, and other places in Turkey in Europe	1	1½
Turkey in Asia, Seaports	1	4
,, ,, Interior	1	7
Persia—		
All Stations (except Bushire)	1	7
Persian Gulf—		
Bushire	2	9
Beloochistan	4	2
India—		
All Stations West of Chittagong	4	7
,, East of Chittagong and Ceylon	4	10
Native Burmah—		
All Stations	5	1
British Burmah and Rangoon, *viâ* Penang	7	4
Native ,, ,, ,,	7	6
Straits Settlements—		
Penang	5	7
Malacca	6	3
Singapore	6	5
Saigon and Cochin China—		
All Stations	7	3
Manila	10	0
China—		
Hongkong, Amoy, Shanghai	8	4
Soochow, Chinkiang, Tientsin, Chinkiangpoo, Chining, Lingching, Taku	9	2
Japan—		
All Stations	12	2
Java and Sumatra—		
All Stations	6	10
Australia—		
South Australia	10	8
West Australia	10	8
Victoria	10	8
New South Wales	10	10
Tasmania	10	8
Queensland	10	10
New Zealand	11	10

Digitized by Google

COMPAGNIE FRANÇAISE DU TELEGRAPHE DE PARIS À NEW YORK.

TARIFF TO THE UNITED STATES OF AMERICA, &c.

22nd MAY, 1882.

To Places situated in the following States, &c.	Price per Word. s.	d.
Alabama	2	5
Arizona	2	10
Arkansas	2	8
California	2	10
Canada, East and West	2	0
Cape Breton	2	0
Colorado Territory—		
Denver	2	5
Leadville	2	5
All other places	2	10
Columbia, District of	2	2
Columbia, British	3	1
Connecticut	2	0
Dakotah Territory	2	10
Delaware	2	2
Florida—		
Lake City	2	5
Pensacola	2	5
St. Mark's	2	5
Talahassee	2	5
All other places	3	6
Georgia	2	5
Idaho Territory	2	10
Illinois	2	3
Indiana	2	3
Indian Territory	2	8
Iowa	2	8
Kansas Territory	2	8
Kentucky	2	3
Louisiana—		
New Orleans	2	5
All other places	2	8
Maine	2	0
Manitoba Territory	2	10
Maryland	2	2
Massachusetts	2	0
Mexico—		
Matamoras	2	9
Tampico	3	7
Vera Cruz	4	0
Camargo, Cadereyta, Cerralvo, Mier, Monterey, Reynosa, and Saltillo	3	0

To Places situated in the following States, &c.	Price per Word. s.	d.
Mexico City	4	2
Government Stations	4	2
State and Private Line Stations	4	9
Michigan	2	3
Minnesota	2	8
Mississippi	2	5
Missouri—		
St. Louis	2	3
All other places	2	8
Montana Territory	2	10
Nebraska Territory	2	8
Nevada Territory	2	10
New Brunswick	2	0
Newfoundland	1	6
New Hampshire	2	0
New Jersey	2	2
New Mexico	2	10
New York		
New York and Brooklyn	2	0
All other places	2	2
North Carolina	2	5
Nova Scotia	2	0
Ohio	2	3
Oregon	2	10
Pennsylvania	2	2
Prince Edward Island	2	0
Rhode Island	2	0
St. Pierre, Miquelon	1	6
South Carolina	2	5
Tennessee	2	5
Texas	2	8
Utah Territory	2	10
Vancouver Island	3	1
Vermont	2	0
Virginia	2	3
,, West	2	3
Washington Territory	2	10
Wisconsin—		
Milwaukee	2	3
All other places	2	8
Wyoming	2	10

WEST INDIES, etc.

	s.	d.		s.	d.
Antigua	12	0	Dominica	12	7
Barbadoes	13	10	Grenada	13	9
Berbice	16	1	Guadaloupe	12	5
Colon (Aspinwall) *vid* Galveston—			Jamaica	7	7
Isthmus of Panama	7	11	Martinique	12	10
*Cuba—			Panama, Isthmus of (*via* Galveston)	7	11
Havana	4	1	Porto Rico	10	11
Cienfuegos	4	10	St. Croix	11	3
Santiago	5	3	St. Kitts	11	9
Bayama	5	6	St. Lucia	13	1
Guantanamo	5	6	St. Thomas	11	0
Manzanillo	5	6	St. Vincent	13	4
All other places	4	4	Trinidad	14	3
Demerara	16	0			

The rate for Spanish Government messages will be:—

	s.	d.	
To Havana	3	5	per word.
,, All places in the West Indies beyond Havana	4	6	,,

*Messages to Cuba should be written in plain ordinary language.

Messages in code or cipher can, however, be accepted, but the Cuban Government reserves to itself the right to demand a translation before delivery. These Messages are forwarded at the risk of the sender.

Messages to places other than Havana should be written in the Spanish language, otherwise they are forwarded entirely at the risk of the sender.

The addresses are charged for. No address must contain less than two words.

The name of the place from which Messages originate will be transmitted Free of Charge.

Digitized by Google

THE

GREAT NORTHERN TELEGRAPH CO. OF COPENHAGEN

Board of Directors.

C. F. TIETGEN, *Chairman.*

C. A. BROBERG. M. G. MELCHIOR.
L. P. HOLMBLAD. J. SICK.
Col. V. HOSKIÆR, R.D.E. F. C. H. E. TOBIESEN.

Managing Director.

Captain E. SUENSON, R.D.N.,

Head Office:—28, Kongens Nytorv, Copenhagen, K.

General Agent in China & Japan.

G. J. HELLAND,

Offices:—Nankin Road, Shanghai.

The Company's Representative in England.

H. G. ERICHSEN,

London Office:—119, BISHOPSGATE STREET WITHIN, E.C.

TARIFF

FROM ALL STATIONS IN THE UNITED KINGDOM.

ALL TELEGRAMS ARE CHARGED AT A FIXED TARIFF PER SINGLE WORD.

EXTRA EUROPEAN TELEGRAMS.

		s.	d.	
To	China—			
	Shanghai, Amoy, Hong Kong	8	4	per word.
,,	Japan—			
	All Stations	9	3	,,
,,	Manila	10	0	,,
,,	Russia in Asia—			
	1st Region	1	9	,,
	2nd Region	2	8	,,

EUROPEAN TELEGRAMS.

		s.	d.	
To	Russia in Europe	0	9	per word.
,,	Russia in Caucasus	0	11	,,
,,	Sweden	0	5½	,,
,,	Norway	0	4	,,
,,	Denmark	0	4	,,

Telegrams are also forwarded to the following places:—

		s.	d.	
To	Turkey in Europe	1	1½	per word.
,,	Turkey in Asia—			
	Seaports	1	4	,,
	Inland	1	7	,,
,,	Turkish Islands—			
	Candia (Crete)	1	7	,,
	Cyprus	1	6	,,
	Mytilene, Rhodes, Samos, Scio (Chios)	1	5½	,,

Digitized by Google

THE

EASTERN EXTENSION, AUSTRALASIA AND CHINA TELEGRAPH COMPANY, LIMITED.

Chairman.

JOHN PENDER, Esq., M.P.

Directors.

Sir JAMES ANDERSON.
FRANCIS A. BEVAN, Esq.
CHARLES W. EARLE, Esq.
Sir THOMAS FAIRBAIRN, Bart.
The Right Hon. VISCOUNT MONCK.
Sir WILLIAM McARTHUR, K.C.M.G., M.P.
GEORGE G. NICOL, Esq.
The Most Hon. the MARQUIS OF TWEEDDALE.

THE CAPITAL IS AS FOLLOWS:

£1,997,500 fully paid shares of £10; £320,000 6 per cent. debentures of £100, with coupons payable February 1st and August 1st, and the principal, August 1st, 1891; £640,000 5 per cent. debentures of £100, with interest payable January 1st and July 1st, and redeemable by July 1st, 1900, secured on a subsidy of £32,400 a year from the government of New South Wales and Victoria; £100,000 5 per cent. debentures issued in 1880, with coupons payable May 1st & November 1st, and redeemable by May 1st, 1890.

THE

EASTERN & SOUTH AFRICAN TELEGRAPH COMPANY, LIMITED.

Chairman.

JOHN PENDER, Esq., M.P.

Directors.

Sir DANIEL GOOCH, Bart., M.P.
Admiral Sir LEOPOLD G. HEATH, K.C.B.
JAMES PENDER, Esq.

Official Director.

CHARLES W. STRONGE, Esq., C.B.

Managing Director.

Sir JAMES ANDERSON.

The capital consists of £400,000 in shares of £10, and £600,000 in 5 per cent. mortgage debentures of £100 each, interest payable January 1st and July 1st. The Company has also subsidies from the English, Cape, Natal, and Portuguese governments amounting to £60,000 a year for 20 years.

Digitized by Google

THE DIRECT UNITED STATES CABLE COMPANY, LIMITED.

Directors.

JOHN PENDER, Esq., M.P., *Chairman.*

WILLIAM FORD, Esq.
C. J. GÜNTHER, Esq.
Lord HAWKE.
Admiral The Hon. Sir HENRY KEPPEL, G.C.B.
Admiral R. C. MAYNE, C.B.
CHARLES MEARA, Esq.
E. M. UNDERDOWN, Esq.

Secretary and Traffic Manager.

J. W. FULLER, Esq.

RATE TO NEW YORK & CANADA - - - 2/- Per Word.

For rates to other places, and further particulars, apply at the Company's Offices.

Head Stations (*Always Open*). **LONDON**.....34, THROGMORTON STREET, E.C.
LIVERPOOL.....D6, EXCHANGE BUILDINGS.

Branch Stations in London. South Sea House (adjoining the "Baltic"), THREADNEEDLE STREET, E.C.
East India Avenue, LEADENHALL STREET, E.C.
The Commercial Sale Rooms, MINCING LANE, E.C.; and
52, OLD BROAD STREET, E.C.

To save time, the Public in **LONDON** and **LIVERPOOL** are recommended to hand in their Telegrams at the Company's Stations, as above, where receipts are given for the amounts charged.

Telegrams for this Company's Cables handed in at Postal Telegraph Offices, must be marked "Via DIRECT CABLE." This instruction is signalled free of charge.

The Name of the Place, from which Messages originate, is transmitted Free of Charge.

General Offices, 52, Old Broad Street, London, E.C. J. W. FULLER, *Secretary and Traffic Manager.*

MONTEVIDEAN AND BRAZILIAN TELEGRAPH COMPANY, LIMITED.

Directors.

Sir THOMAS GORE BROWNE, K.C.M.G., C.B., 7, Kensington Square, W., *Chairman.*
CHARLES CAMERON, Esq., M.P., 80, St. George's Square, S.W.
Lieut. Col. G. W. MACAULEY, 30, Upperton Gardens, Eastbourne.

Secretary.

J. FRASER, Esq.

Office.

2, Tokenhouse Buildings, King's Arms Yard, E.C.

CAPITAL, £89,140.

THE WESTERN & BRAZILIAN TELEGRAPH COMPANY, LIMITED.

19, *GREAT WINCHESTER STREET, LONDON, E.C.*

Directors.

Sir HENRY DRUMMOND WOLFF, *Chairman.*
Mr. ANDREWS.
Mr. EARLE.
Mr. GOODSALL.
Mr. WEAVER.
Major A. WOOD.

Secretary.

R. M. CUNNINGHAM.

The Route of the Cables is from

Para to Maranham.
Maranham to Ceara.
Ceara to Pernambuco.
Pernambuco to Bahia
Bahia to Rio de Janeiro.
Rio de Janeiro to Santos
Santos to Santa Catharina.
Santa Catharina to Rio Grande do Sul.
Rio Grande do Sul to Monte Video.

Digitized by Google

THE

ELECTRIC NEWS-TELEGRAPH COMPANY, LIMITED.

CHIEF OFFICES—4, LUDGATE CIRCUS, E.C.

STOCK EXCHANGE OFFICES—4, WARNFORD COURT, E.C.

Worked under Special License from the Right Hon. the Postmaster-General, and in accordance with the Companies' Acts.

Directors.

GENERAL SIR MICHAEL KENNEDY, K.C.S.I., CHAIRMAN.
A. F. PENNELL, ESQ.
WILLIAM SAUNDERS, Esq., Chairman of the Central News, Limited.

Managing Director.

WILLIAM J. BURNSIDE, Esq.,

Secretary.

JOHN COOPER.

Tariff for Automatic News-Transmitting Instrument.

General News, Sporting, and Parliamentary, for Clubs, News-Rooms, Hotels, Restaurants, Taverns, &c., at 50 guineas per annum; also a Complete separate Service of Stock Exchange Quotations, &c., for £50 per annum.

Attention is directed to the following points of advantage accruing to subscribers by the use of the instruments referred to over any other of the same kind:—

It prints at a rate very much beyond that of any other now in use.
The Messages are printed in much larger, clearer, and bolder type.
The Machines have a constantly adjusting arrangement, by which the possibility of their getting out of order is reduced to a minimum.
They are smaller in size.
More simple in construction.
Have only one wire.
Are nearly noiseless.
And far exceed in general excellence and simplicity of construction any of the instruments which have been hitherto brought out.

SUBMARINE TELEGRAPH COMPANY, LIMITED.

BETWEEN

GREAT BRITAIN AND THE CONTINENT OF EUROPE.

OFFICES OF THE COMPANY—2, THROGMORTON AVENUE, LONDON, E.C.

Directors.

SIR JAMES CARMICHAEL, BART., CHAIRMAN.
THE RT. HON. ROBERT BOURKE, M.P.
SIR JULIAN GOLDSMID, BART.
H. R. BRAND, Esq., M.P.
SIR ARTHUR OTWAY, BART., M.P.
THE HON. ASHLEY PONSONBY.

A dividend was paid at the rate of 19 per cent. per annum, and the sum of £123 16s. 9d. was carried over to the next account, 10 per cent. of the gross receipts being added to the Reserve Fund.

Digitized by Google

THE WEST INDIA & PANAMA TELEGRAPH COMPANY, LIMITED.

Directors.

C. W. EARLE, Esq., Chairman.
Sir JAMES ANDERSON. WILLIAM ANDREWS, Esq.
CYRUS W. FIELD, Esq., WILLIAM FORD, Esq., HENRY HOLMES, Esq.
HENRY WEAVER, Esq.

Secretary.

Mr. CONSTANTINE M. HOOPER.

Offices.

DASHWOOD HOUSE, 9, NEW BROAD STREET, LONDON, E.C.

TARIFF TO THE WEST INDIES, &c.

	s.	d.		s.	d.
Antigua	12	0	Martinique	12	10
Barbadoes	13	10	Panama	7	8
Berbice	16	1	Porto Rico	10	11
Colon (Aspinwall)	7	11	St. Croix	11	3
Demerara	16	0	St. Kitts	11	9
Dominica	12	7	St. Lucia	13	1
Grenada	13	9	St. Thomas	11	0
Guadalope	12	5	St. Vincent	13	4
Jamaica	7	7	Trinidad	14	3

And *vid* Panama, Messages can be forwarded to all Stations in Central and South America.

THE BRAZILIAN SUBMARINE TELEGRAPH COMPANY, LIMITED.

Directors.

THE RIGHT HONOURABLE VISCOUNT MONCK, Chairman.
Sir JAMES ANDERSON, Vice-Chairman.
The Hon. WILLIAM ST. JOHN F. BRODRICK, M.P.
Sir THOMAS FAIRBURN, Bart. HENRY DANIEL GOOCH, Esq.
FREDERICK YOULE, Esq.

Director Representing the Company Abroad.

CARLOS FERREIRA dos SANTOS SILVA, Esq. (Lisbon).

Managing Director.

THOMAS FULLER, Esq.

Secretary.

RICHARD COLLETT, Esq.

A final dividend of 3s. per share, making a total dividend of Six per cent. for the year ended 30th June, 1882, and also the payment of a bonus of 2s. per share, both free of Income Tax, which together amounted to £32,500, being a distribution in the aggregate of Seven per cent. for the past year, leaving a balance of £1,295 4s. 4d., to be carried forward.

Digitized by Google

SUB-MARINE CABLES TRUST.

Trustees:

SIR J. ANDERSON. — SIR D. GOOCH, BART, M.P.
VISCOUNT MONCK. — JOHN PENDER, M.P.
MARQUIS OF TWEEDDALE.

Secretary:

L. WELLS, ESQ.—Offices: 66, Old Broad Street, E.C.

Capital, £420,000.

CUBA SUB-MARINE TELEGRAPH COMPANY, LIMITED.

Directors:

T. HUGHES, Q.C. (Chairman). — N. BANNATYNE.
A. F. LOW. — J. DE MANCHA.
H. J. PERRY.

Secretary:

J. SCOTT, ESQ.—Offices: 61, Old Broad Street, E.C.

The Capital is £160,000, in fully paid Ordinary Shares of £10, and £60,000 in 10 per cent. cumulative preference shares of £10 fully paid.

DIRECT SPANISH TELEGRAPH COMPANY, LIMITED.

Directors:

N. BANNATYNE (Chairman)
E. ETLINGER, A. SCOTT.

Manager:

C. GERHARDI.—Offices: Leadenhall Buildings, Leadenhall Street, E.C.

The Capital consists of £129,310 Ordinary Shares of £10, with £9 per share paid, and £58,430 fully paid 10 per cent. cumulative preference shares.

EXCHANGE TELEGRAPH COMPANY, LIMITED.

Directors:

SIR J. ANDERSON (Chairman). — E. W. ANDREWS.
C. H. ASPREY. — H. BURT.
J. H. HUTCHINSON. — C. S. SEYTON.
W. H. DAVIES (Managing).

Offices: 17 & 18, Cornhill, E.C.

Capital, £213,000.

GERMAN UNION TELEGRAPH & TRUST COMPANY, LIMITED.

Directors:

SIR J. ANDERSON. — COUNT O. VON REICHENBACH.
J. D. PENDER. — H. G. ERICHSEN.

Secretary:

W. PAYTON, ESQ.—Offices: 66, Old Broad Street, E.C.

Capital, £220,500.

Digitized by Google

GLOBE TELEGRAPH & TRUST COMPANY, LIMITED.

Directors:

J. PENDER, M.P. (Chairman).
W. FORD.
H. D. GOOCH.
SIR J. ANDERSON.
SIR D. GOOCH, BART, M.P.
MARQUIS OF TWEEDDALE.

Secretary:

W. PAYTON, Esq.—Offices: 66, Old Broad Street, E.C.

The Capital consists of £1,697,850, 6 per cent. preference shares, and £1,699,700 ordinary shares, both of £10, and fully paid.

INDIA RUBBER, GUTTA PERCHA, AND TELEGRAPH WORKS COMPANY, LIMITED.

Directors:

G. HENDERSON (Chairman).
A. BETTIE, M.D.
N. BANNATYNE.
S. W. SILVER.
M. GRAY, Manager.

Secretary:

W. J. TYLER, Esq.—Office: 106, Cannon Street, E.C.

The Capital is £312,000, in fully paid shares of £10, and there are 6 per cent. mortgage debentures to the amount of £100,000, and loans amounting to £54,520.

LONDON, PLATINO-BRAZILIAN TELEGRAPH COMPANY, LIMITED.

Directors:

J. PENDER (Chairman).
J. HOLLOCOMBE, and F. PAVY.

Secretary:

W. PAYTON, Esq.—Offices: 66, Old Broad Street, E.C.

Capital, £383,480.

MEDITERRANEAN EXTENSION TELEGRAPH COMPANY, LIMITED.

Directors:

SIR J. CARMICHAEL, BART. (Chairman.)
HON. A. PONSONBY, and C. H. ROBINSON.

Secretary:

E. TOMBS, Esq.—Office: 158, Gresham House, E.C.

Capital, £152,000.

W. T. HENLEY'S TELEGRAPH WORKS COMPANY, LIMITED.

Directors:

H. ALCOCK.
W. T. HENLEY.
A. MONGREDIEN.
E. FIGGERS.
R. J. JENKINS.
F. NEWTON.
J. D. WALKER.

Secretary:

G. SUTTON, Esq.—Offices: 8, Drapers' Gardens, E.C.

The Capital is £60,950 in fully-called shares of £10, and there are 7 per cent. mortgage debentures to amount of £15,000 with interest, payable March 1st, and September 1st.

Digitized by Google

TELEGRAPH CONSTRUCTION AND MAINTENANCE COMPANY, LIMITED.

Directors:

Sir D. GOOCH, Bart., M.D. (Chairman). G. W. CAMPBELL.
Sir T. FAIRBAIRN, Bart. Sir G. ELLIOT, Bart, M.P.
P. RAWSON. Lord A. PAGET.
Vice-Admiral Sir G. H. RICHARDS, C.B., and W. SHUTER (Manager).

Secretary:

E. DICKENS, Esq.—Offices: 38, Old Broad Street, E.C.
Capital, £448,200.

THE WEST COAST OF AMERICA TELEGRAPH COMPANY, LIMITED,

98, CANNON STREET, LONDON, E.C.

AND

THE CENTRAL AND SOUTH AMERICAN TELEGRAPH COMPANY,

37, WALL STREET, NEW YORK.

Messages by this Route must be marked "Viâ GALVESTON."

TARIFF Per Word from GREAT BRITAIN to

	s.	d.		s.	d.
Salina Cruz	5	0	Arica	12	5
Libertad	5	2	Tacna	13	1
San Juan Del Sur	6	2	Iquique	12	8
Panama	7	8	Antofagasta	13	3
Buenaventura	8	4	Caldera	13	3
Santa Elena	9	4	Serena	14	1
Payta	10	0	Coquimbo	14	8
Callao	11	0	Valparaiso	14	8
Lima	11	0	Santiago (Chili)	14	8
Mollendo	12	3	Buenos Ayres	16	4
Arequipa	13	1	Rosario	16	9

TELEGRAPHIC COMMUNICATION WITH

VALPARAISO,

Panama, Buenaventura, Payta, Lima, Mollendo, Arica, Iquique, Antofagasta, and all Telegraph Stations in PERU, CHILI AND THE ARGENTINE REPUBLIC, IS NOW ESTABLISHED

Viâ NEW YORK AND MEXICO.

Messages can be handed in at the Postal Telegraph Offices, and at the offices of the Atlantic Telegraph Companies.

THE

UNITED TELEPHONE COMPANY,

LIMITED.

Chairman.—JAMES BRAND, Esq.

Deputy Chairman.—JAMES STAATS FORBES, Esq.

JOHN HENRY AGNEW, Esq. | Col. GOURAUD.
JOHN W. BATTEN, Esq. | DILLWYN PARRISH, Esq.
W. CUTHBERT QUILTER, Esq.

Managing Director.—JOSEPH B. MORGAN, Esq.

EXTRACT FROM THE REPORT OF THE DIRECTORS.

DIVIDEND.—The Balance of Net Revenue for the year ending 30th April, 1882, was £21,495 8s. 7d., and the Directors recommended the distribution of a dividend of 5 per cent. for the year, leaving a Balance of £1,945 8s. 7d. to be carried forward.

Digitized by Google

THE

NORTHERN DISTRICT TELEPHONE COMPANY,

LIMITED.

(Under Licence from The United Telephone Company, Limited), who are

Sole Proprietors of the Master Patents covering the Bell, Edison, Crossley, Gower-Bell, and other Patents for the United Kingdom.

Registered under the Companies' Acts, 1862 to 1880.

CAPITAL - - £100,000.

Directors.

CHARLES HOLLOWAY REED, J.P., Iron Manufacturer, Sunderland, *Chairman.*
WILLIAM HENRY DIXON, Shipowner, Sunderland, *Vice-Chairman.*
SAMUEL ALCOCK, Solicitor, Sunderland.
JAMES HENRY WOOD CULLIFORD, Shipowner, Sunderland and London.
RALPH MILBANKE HUDSON, Jun., Shipowner, Sunderland.
*JOSEPH BOND MORGAN, Managing-Director of United Telephone Company, 36, Coleman Street, London, E.C.
THOMAS WILSON, Shipowner, Sunderland.

* *Nominated by The United Telephone Company, Limited, under Agreement.*

Bankers.

THE NATIONAL PROVINCIAL BANK OF ENGLAND, LIMITED, and Branches.

Solicitor.

R. ROUTLEDGE, Frederick Lodge, Sunderland.

Brokers.

MESSRS. BILLETT & BLAIKIE, 5, Copthall Buildings, London.
MESSRS. W. H. CHALLONER & CO., Sunderland.

Auditors.

B. SMYRKE, Chartered Accountant, John Street, Sunderland.
ROBERT S. BLEASE, 25, Castle Street, Liverpool.

Manager.

WILLIAM EDWIN IRISH.

Secretary.

T. A. SIMPSON.

Offices.

EXCHANGE BUILDINGS, QUAY SIDE, NEWCASTLE-UPON-TYNE;
ARCADE CHAMBERS, SUNDERLAND.

This Company has been formed under an Agreement with the United Telephone Company, Limited, dated the 19th day of October, 1881, for the introduction and application of Telephones for the working of Exchanges in the Northern Counties of England and part of Scotland, and for the working, letting on hire and selling Telephones, and all other work incidental or conducive to the developing of Telephonic Communication.

Tariff is Exchange for any distance within a radius of half-a-mile from Exchange £14 per annum; beyond half-a-mile and within the Boro' Boundary £16 per annum, payable in advance; greater distances by special arrangement.

Digitized by Google

United Telephone Company of the River Plate, Limited.

Capital £200,000, in £5 Shares.

REGISTERED OFFICE:—
19, GREAT WINCHESTER STREET, LONDON, E.C.

OBJECTS.

To adopt two agreements of the 16th instant, the first between the Continental Telephone Company and T. R. Raleigh, and the second between Adolph Fels and T. R. Raleigh; and also to carry on the general business of a Telephone and Telegraph Company.

Signatories.

A. WOOD, Godstone, Surrey, (20 Shares).

R. M. CUNNINGHAM, 114, Earl's Court Road, (20 Shares).

E. C. BLOGG, 43, Alvington Crescent, Dalston, (1 Share).

E. CLIFF, 53, Upham Park Road, (1 Share).

W. M. CRACE, Loughton, Essex, (1 Share).

T. W. BISCHOFF & J. H. DODGSON, 4, Great Winchester Street, London, E.C. (1 Share each).

The Signatories are to nominate the first Directors; Qualification, 20 Shares; Remuneration, £500 per Annum and One-tenth of Dividend or Bonus over £5 per cent. per Annum upon Paid Up Capital.

Registered 16th inst., by BOMYAS, BISCHOFF & DODGSON, 4, Great Winchester Street, London, E.C.

LANCASHIRE & CHESHIRE TELEPHONIC EXCHANGE COMPANY, LIMITED.

Directors:

J. H AGNEW.
J. B MORGAN.
F. W REYNOLDS.
E. HEYWORTH.
C. MOSELEY.
G. H. ROBERTSON.
J. THOMPSON (Managing).

Secretary:

K. MACIVER, Esq.—Office: 38, Faulkner Street, Manchester.

Capital, £260,000.

Tariff wire rate for Exchange wires is £20 per annum in advance for any place under ½ mile from the Post Office, £22 over ½ and up to 1 mile, and after that £7 per mile additional.

NORTHERN DISTRICT TELEPHONE COMPANY, LIMITED.

Office:

B. Exchange-buildings, Quayside, Newcastle-on-Tyne.

The Company was registered in December, 1881, with a capital of £115,000, as follows:—

£100,000 in 2,500 Shares of £10, and £15,000 Shares of £5.

Digitized by Google

ORIENTAL TELEPHONE COMPANY, LIMITED.

Directors:

JOHN PENDER, M.P. (Chairman).
SIR A. ARMSTRONG, K.C.B.
P. CARNEGY, C.I.E.
J. P. BIGELOW.
SIR J. VOGEL, K.C.M.G.
SIR W. THOMPSON (*ex-officio*).
JAMES PENDER.
W. W. CARGILL.
COLONEL GOURAND.

Secretary:

W. G. HALL, Esq.—Offices: 3 & 4, Great Winchester Street, E.C.

Capital, £275,000.

BRITISH & IRISH TELEPHONE & ELECTRIC WORKS COMPANY,

Directors:

E. B. BRIGHT (Chairman).
J. HUBBACK.
MAJOR J. D. MACKENZIE.
R. ADDYMAN.
S. LAKE.
J. OWEN.

Secretary:

W. H. G. EXTON, Esq.—Office: 20, Regent Street, S.W.

Capital, £100,000.

NATIONAL TELEPHONE COMPANY, LIMITED.

Directors:

COL. R. R. JACKSON (Chairman).
HON. G. G. HUBBARD.
J. BRUCE.
W. LOWSON.
S. D. WILLIAMS.
P. GARNETT.
T. A. DICKSON, M.P.
J. P. BIGELOW (Vice-Chairman).
J. GARNETT.
W. A. SMITH.
W. H. BRADBURY.
S. H. SANDS.
J. F. HARRISON.
J. H. AGNEW.
J. B. MORGAN.

Secretary:

W. B. CAMPBELL, Esq.—Office: 11, Queen Victoria Street, E.C.

The Capital consists of £450,000 fully paid ordinary shares of £5; allotted to the United Telephone Co. and the Provincial Telephone Co., and £150,000 in 6 per cent. cumulative preference shares of £10, of which 2,780 shares are fully paid, and 12,220 have £6 paid.

TELEPHONE COMPANY OF IRELAND, LIMITED.

Directors:

E. D. GRAY, M.P. (Chairman).
A. DUDGEON.
T. MAYNE.
J. BAILEY.
H. G. CRICHSEN.
J. B. MORGAN.
J. WINSTANLEY.

Secretary:

J. F. BUTTERWORTH, Esq.—Office: Commercial Buildings, Dublin.

The Capital is £200,000, in 25,000 6 per cent. cumulative Preference Shares of £1, and 175,000 Ordinary Shares of £1.

Digitized by Google

THE

Consolidated Telephone Construction

AND

Maintenance Company,

LIMITED.

General Offices: No. 6, LOMBARD STREET, E.C.
Factory: FARRINGDON ROAD, E.C.

CAPITAL.

300,000 Shares of £1 .. .. £300,000.

200,000 of which have been Issued.

Directors.

Sir JULIUS VOGEL, K.C.M.G., (*Chairman.*)
Sir A. ARMSTRONG, K.C.B., LL.D.
J. P. BIGELOW.
P. CARNEGY, C.I.E.
F. A. GOWER.
J. A. MAYS.
J. L. MONTEFIORE.
D. PARRISH.
Hon. HOWARD SPENSLEY.

The only authorized Manufacturers and Exporters in the United Kingdom of Telephones under the

"EDISON," "BELL," "GOWER-BELL,"

AND OTHER PATENTS.

Telephone Materials of every description, including Line Work, contracted for.

C. CURTOYS, *Secretary.*

Digitized by Google

THE

LONDON & GLOBE TELEPHONE

AND

MAINTENANCE COMPANY,

LIMITED,

Offices:—31, QUEEN VICTORIA STREET,

LONDON, E.C.

CAPITAL, £600,000.

Board of Directors.

STEWART PIXLEY, Esq., (*Chairman*).
F. FORMBY BACK, Esq.
ROBERT EWING, Esq.
JOHN GLAS SANDEMAN, Esq.

Continental Director.

LÉON SOULERIN, Esq., 12, Rue Ste. Anne, Paris.

General Manager.

HORACE H. ELDRED, Esq.

Consulting Electricians.

Professor SILVANUS P. THOMPSON, B A., D.S., F.R.A.S.
ALEXANDER MUIRHEAD, Esq., D.S., F.C.S.

Electricians.

GEORGE L. ANDERS, Esq.
J. B. HENCK, Jun.

Secretary.

JAMES FORD, Esq.

This Company having been licensed by Her Majesty's Postmaster-General, is arranging for the construction of Telephone Exchanges in different parts of the United Kingdom.

Digitized by Google

THE
STANDARD TIME & TELEPHONE COMPANY,
LIMITED,
19 & 21, QUEEN VICTORIA STREET,
LONDON, E.C.

CAPITAL - - - £100,000.

Hon. HOWARD SPENSLEY, *Chairman.*
LATIMER CLARKE, Esq., M.I.C.E., *Consulting Electrician.*
JOHN ALEX. LUND, M.S.T.E., *Managing Director.*
EDGAR RAY, *Secretary.*

The STANDARD TIME AND TELEPHONE COMPANY design and construct Time Balls, Time Guns, Flashing and other Signals for Government, Observatory, Railroad and private Time Services. They are the sole owners of Barraud and Lunds' patents, which can be applied at a slight expense to any clocks now in use, and which form the basis of the completely successful London system of Synchronized Clocks. They will receive proposals for the sale of the rights to use or manufacture the patents controlled by them in Provincial Towns and elsewhere, and also for the extension of their existing Greenwich Mean Time system in London, either for simple Time Signals, or for Synchronizing existing Clocks, being a Time Service by Electric Current worked under contract with Her Majesty's Postal Telegraph Department.

They are also prepared to sell or hire Telephones of effective service, and to erect and maintain the needful Telegraph lines in connection therewith.

Descriptive circulars furnished on application to THE STANDARD TIME AND TELEPHONE COMPANY LIMITED, 19 and 21, Queen Victoria Street, London, E.C.

EDISON-GOWER-BELL TELEPHONE COMPANY, LIMITED.

Directors:

COL. GOURAND (Chairman). SIR A. ARMSTRONG, K.C.B.
E. H. JOHNSON. SIR J. VOGEL, K.C.M.G.

Secretary:

R. H. KRAUSE, Esq.—Office: 34, Walbrook, E.C.

Capital, £365,000, in fully paid Shares of £1.

The Company carries on Exchange business in various European countries, and has the sale of telephones for abroad, under the Edison & Gower-Bell patents.

Best Wire for Telegraphs, Telephones & Electrical Purposes.

SPECIAL PHOSPHOR BRONZE WIRE FOR TELEPHONE LINES.

SPECIAL SILICIUM BRONZE WIRE FOR TELEGRAPH LINES.

Great Tensile Strength and High Conductivity.

For Prices and Particulars apply to the Sole Manufacturers under Patents for the United Kingdom, India, and the British Colonies.

THE PHOSPHOR BRONZE COMPANY,
LIMITED.
87, SUMNER ST., SOUTHWARK, LONDON, S.E.

Digitized by Google

PETER BROTHERHOOD,

MECHANICAL ENGINEER,

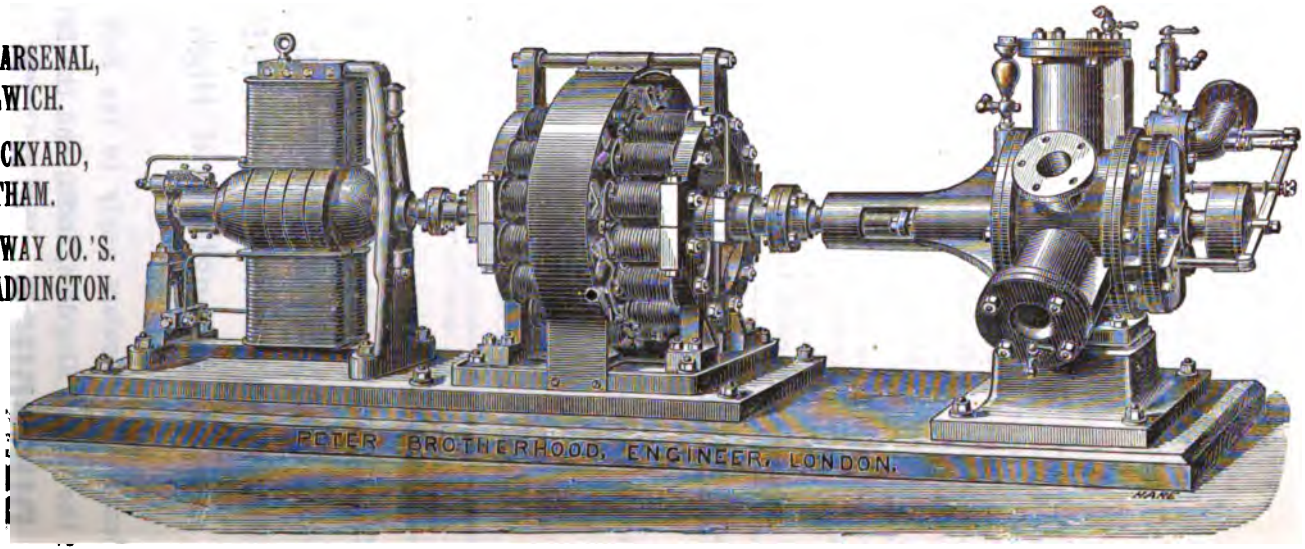
BELVEDERE ROAD, WESTMINSTER BRIDGE, LONDON, S.E.

PARIS:—HENRY CHAPMAN, ESQ., 10, RUE LAFITTE.

ROYAL ARSENAL, WOOLWICH.

H.M. DOCKYARD, CHATHAM.

G.W. RAILWAY CO.'S. STAT., PADDINGTON.



Messrs. BOLCKOW, VAUGHAN & Co. MIDDLESBORO. and in general use in the French, Italian, Austrian, Russian, Danish, &c., Navies.

PATENT 3-CYLINDER ENGINES

As supplied for driving Dynamo Machines, in use on Cunard Steamers, "Servia," "Cephalonia," "Pavonia," SS. "Faraday," "Manapouri," "Goorkha," "Wairarapa," "Rewa," new Channel Steamer "Invicta," H. M. S. "Inflexible," "Polyphemus." "Volage," "Hotspur," "Orion," "Bloodhound," "Sultan," "Rover," "Himalaya," &c., &c.

Digitized by Google

H. BURY,

ELECTRIC LIGHT ENGINEER & CONTRACTOR FOR ELECTRIC LIGHTING

ON ALL APPROVED SYSTEMS.—THE SWAN-BÜRGIN GRAMME, &c.

Maker of all kinds of Electric Light Apparatus, Dynamos, Lamps, Pfannkuche and Dunstan Resistance Box, &c., &c.

AGENT FOR THE SWAN LAMP.

IMPORTER OF

AMERICAN BELTING.

MAKER OF MULLER'S PATENT WATER METER.

46, MARKET STREET, MANCHESTER.

Works: SCHOOL STREET, LOWER BROUGHTON.

LIST OF

ELECTRIC LIGHT COMPANIES,

WITH

NAMES OF DIRECTORS,

PARTICULARS OF CAPITAL, TARIFF, &c.

THE

SCHOOL OF TELEGRAPHY & ELECTRICAL ENGINEERING,

12, PRINCES STREET, corner of HANOVER SQUARE,

LONDON, W.

Managing Director—Mr. T. I. JONES, M.S.T.E.

NATURE OF THE TRAINING AND STUDIES.

In reference to the Nature of the Training and Studies, the PRACTICAL portion of the Course includes tuition and daily practice in the *Systems of Telegraphy* generally employed, and particularly in Submarine Telegraphy; also in the various *Systems of Electric Lighting*, including the management of *Prime Motors*, *Arc*, and *Incandescent Lamps*, *Accumulators*, *&c.*; and, lastly, in the various applications of Telephony which have been carried into practice. No pains or expense has been spared to place at the disposal of pupils the technical and scientific instruction requisite to qualify candidates for the most important posts in connection with these new branches of electrical engineering. In order that the instruction in the erection, adjustment, testing, and working of *Telephone* and *Electric Light* circuits may be thoroughly practical, complete working *Telephone Exchanges* upon the various systems in use in different countries have been fitted up; every kind of Telephone, both for exchange systems and private lines, with all apparatus used therewith is provided (in duplicate when possible, so that students may be able to dissect and reconstruct the same). The necessary tools and materials are available, and every facility is given for conducting experiments by pupils desirous of so doing, and a similar course is being pursued with the *various Lamps* and *Machines*, &c., in the *Electric Light* department, so that pupils from the school are in a position to enter either of these new fields. The THEORETICAL portion is embodied in Lectures delivered by well-known authorities to the various Classes through which the Students successively pass.

Further information may be obtained on application to

W. N. TIDDY, Secretary.

Digitized by Google

THE

ANGLO-AUSTRIAN BRUSH ELECTRICAL

COMPANY, LIMITED.

CAPITAL - - £500,000.

BRUSH AND LANE-FOX SYSTEM.

Directors.

SIR WILLIAM H. STEPHENSON, K.C.B., late Chairman Board of Inland Revenue (Chairman), The Chesnuts, Uxbridge.
THE HON. ARTHUR SAUMAREZ, 17, Grosvenor Gardens, S.W.
LT.-COL. R. W. HAMILTON, 1, Cadogan Square, S.W.
SIR A. F. A. SLADE, BART., 3, Lyall Street, Belgrave Square, S.W.
GEORGE BADEN-POWELL, ESQ., M.A., F.R.A.S., F.S.S., 8, St. George's Place, Hyde Park Corner, S.W.
ST. GEORGE LANE-FOX, ESQ., (Patentee of the Lane-Fox System), Queen Anne's Mansions, Westminster, S.W.
C. DE KIERZKOWSKI-STEUART, ESQ., Memb. Inst. C.E. (Engineer and Representative of the Anglo-American Brush Electric Light Corporation at the Paris Exhibition, 1881), 7, Collingham Road, Cromwell Road, S.W.

With power to add to their number.

Electrician.

CHARLES H. BENTON, ESQ., lately Electrician in the "Brush Electric Company," of Cleveland, Ohio, U.S.

London Bankers.

MESSRS. BROWN, JANSON & Co., 62, King William Street, E.C.

Bankers in Austria-Hungary.

THE ANGLO-AUSTRIAN BANK, Vienna, and Branches at Budapest, Prague, and Brünn.

Brokers.

MESSRS. W. H. L. BARNETT & Co., 28, Threadneedle Street, E.C.

Solicitors.

MESSRS. HOLLAMS, SON & COWARD, London Commercial Sale Rooms, Mincing Lane, E.C.

Auditors.

MESSRS. COOPER BROTHERS & Co., 14, George Street, Mansion House, E.C.

Secretary.

WM. THOMPSON.

Offices.

4, COPTHALL BUILDINGS, E.C.

This Company is formed for the purpose of manufacturing, working and supplying in Austria Hungary and Roumania, apparatus for the application of electricity, and of promoting local companies or associations for working the same.

Digitized by Google

THE

GREAT WESTERN ELECTRIC LIGHT & POWER COMPANY,

LIMITED,

For the Counties of GLOUCESTER, SOMERSET, DORSET, WILTS, MONMOUTH, GLAMORGAN, PEMBROKE, CARMARTHEN, RADNOR, BRECON and HEREFORD,

CAPITAL - - £250,000.

Brush System of Electric Lighting & Lane-Fox Incandescent Lamp.

Directors.

HENRY MAUDSLEY, Esq., Hill House, Bramberton, and Westminster Palace Hotel, S.W.
WILLAM LADD, Esq., F.R.A.S., Electrician, London, Director of the Anglo-American Electric Brush Light Corporation, Limited.
JAMES WHITEHEAD, Esq., Director of Pawson & Co., Limited, Highfield House, Catford Bridge.
Capt. The Hon. FULKE GREVILLE, Brooks' Club and The Glen, Sunninghill, Berks.
E. G. CLARKE, Esq., (Messrs. Tribe, Clarke & Co.), 2, Moorgate Street Buildings, E.C., and Bristol.
J. WESLEY GARDNER, Esq., (Messrs. Gardner, Thomas & Co.), Bristol.
H. RUSSELL EVANS, Esq., J.P., Newport, Monmouthshire.
R. W. A. SOUTHERN, Esq., Mining Engineer, Cardiff.

Bankers.

NATIONAL PROVINCIAL BANK OF ENGLAND, Limited, LONDON,
BRISTOL AND WEST OF ENGLAND BANK, Limited, BRISTOL,
And their several Branches.

Solicitors.

CLARKE, WOODCOCK & RYLAND, 14, Lincoln's Inn Fields, London, W.C.
FUSSELL, PRICHARD, SWANN & HENDERSON, Liverpool Chambers, Bristol.

Auditors.

TURQUAND, YOUNGS & CO., 41, Coleman Street, London, E.C.

Consulting Electrician.

Professor Silvanus P. THOMPSON, D. Sc., B.A., F.R.A.S., University College, Bristol

Secretary.

ALEXANDER SMITH.

Offices.

31, LOMBARD STREET, LONDON, E.C., and 16, HIGH STREET, BRISTOL.

Digitized by Google

THE "PILSEN," "JOEL," AND GENERAL ELECTRIC LIGHT COMPANY, LIMITED.

CAPITAL £200,000, in 40,000 Shares of £5 each.

Directors:

SIR RAWSON W. RAWSON, K.C.M.G., C. B., 68, Cornwall Gardens, S.W.
FRANK P. FELLOWS, Esq., F.S.A., F.S.S., Reform Club, S.W.
MAJOR-GEN. HENRY HOPKINSON, C.S.I., 104, Cromwell Road, South Kensington, S.W.
HORACE W. SCRIVEN, Esq. (Messrs. Paley, Scriven & Co.), 34, Gt. St. Helen's, E.C.
*JOHN GODDARD, jun., Esq., Director, North Metropolitan Tramway Co., Limited.
*DILLWYN PARRISH, Esq., Director, United Telephone Company.

* These Gentlemen being interested as Vendors will join the Board after Allotment.

Bankers:

MESSRS. BARCLAY, BEVAN, TRITTON & Co., 54, Lombard Street, E.C.

Solicitors:

MESSRS. PAINES, LAYTON & POLLOCK, 47, Gresham House, E.C.

Brokers:

MESSRS. ELLIS & Co., 2, Royal Exchange Buildings, London, E.C.

Electrical Engineer:

H. F. JOEL, Esq., C.E.

Secretary:

E. T. GREGORY, Esq.

Offices:

ST. STEPHEN'S CHAMBERS, TELEGRAPH STREET, MOORGATE STREET, E.C.

This Company has been formed for the purpose of acquiring for the United Kingdom, the Colonies and the Dependencies of the Crown, the patents and rights for the three distinct systems of electric lighting, viz.:—

The "Pilsen"	Arc light.
The "Joel"	Semi-incandescent.
The "Gatehouse"	Incandescent light.

PATENT ELECTRIC GAS IGNITING COMPANY, LIMITED.

The return of this Company, made up to the 14th inst., was filed on the 20th inst.

THE NOMINAL CAPITAL IS £100,000, IN £5 SHARES.

16,000 Shares have been allotted and the full amount called thereupon.

The calls paid amount to £69,752 10s., leaving £10,247 10s. unpaid.

Registered Office: 7, QUEEN VICTORIA STREET.

SOUTH STAFFORDSHIRE ELECTRIC LIGHTING COMPANY, LIMITED.

The return of this Company, made up to September 28th, was filed on October 10th. The nominal Capital is

£100,000, in £5 SHARES,

but only 16 Shares are recorded as taken up, and upon these nothing has been paid.

REGISTERED OFFICE: 33, WATERLOO STREET, BIRMINGHAM.

Digitized by Google

AUSTRALASIAN ELECTRIC LIGHT, POWER AND STORAGE COMPANY, LIMITED.

Directors:

R. C. WANT (Chairman). J. J. CATER.
L. CLARK. P. FALK.
Lieut.-Genl. H. M. HAMILTON, C.B.

Secretary:

J. H. DUNCAN, Esq.—Offices: 4, Copthall-buildings, E.C.

Capital, £150,000.

THE LAING ELECTRIC LIGHT & POWER COMPANY, Limited,

CAPITAL - - - - £1,000,000.

Secretary.—J. SADLER WOOD, Esq.

Offices:—4 and 5, THREE CROWN SQUARE, LONDON BRIDGE, S.E.

FACTORY:—NEPTUNE WORKS, NEPTUNE STREET, WELLCLOSE SQUARE, E.

THE RIVER PLATE TELEPHONE & ELECTRIC LIGHT COMPANY, LIMITED.

CAPITAL, £100,000, in 20,000 Shares of £5 each,
Divided into 16,000 Preferred and 4,000 Deferred Shares.

Directors.

SIR JULIUS VOGEL, K.C.M.G (Chairman).
SIR ALEX. ARMSTRONG, K.C.B. &c.
J. P. BIGELOW, Esq.
P. CARNEGY, Esq., C.I.E.
F. A. GOWER, Esq.
} *Chairman and Directors of the Consolidated Telephone Construction and Maintenance Company, Limited.*

Local Board.

Sr. DON CARLOS H. SANFORD.
Sr. DON FRANCISCO SEEBER.
} *Buenos Ayres.*

Solicitors.

Messrs. JOHN MACKRELL & CO., 21, Cannon Street, E.C.

Bankers.

THE ALLIANCE BANK, LIMITED, Bartholomew Lane, E.C.

Brokers.

Messrs. ARTHUR ANDERSON & CO., 30, Throgmorton Street, E.C.

Auditors.

Messrs. DELOITTE, DEVER, GRIFFITHS & CO.

Secretary.

CHALES CURTOYS, Esq.

Offices.

6, Lombard Street, London, E.C.

Digitized by Google

THE SOUTH AFRICAN "BRUSH" ELECTRIC LIGHT AND POWER CO., LIMITED.

CAPITAL, £100,000, in 20,000 Shares of £5 each.

Directors:

COL. C. B. BRACKENBURY, R.A., Waltham Abbey, Essex.

LIEUT.-COL. GEORGE COXON, 55, St. Charles Square, Notting Hill, W.

THOMAS DICKSON, Esq., Director of the "Brush" Electric Light and Power Co. of Scotland, Richmond House, South Norwood.

PORTER RHODES, Esq., 8, Harley Street, Cavendish Square, W.; and Kimberley.

JOHN WILLIAMS ANDERSON, Esq. (of Messrs. Blaine, Macdonald & Co.), 2, Suffolk Lane, E.C.

CHARLES EDWARD ATKINSON, Esq. (of Messrs. Atkinson, Smith & Blight), 11, Clement's Lane, E.C.; and Port Elizabeth.

Colonial Manager:

D. MACDONALD, Esq., C.E

Electricians at Kimberley and Cape Town.

MESSRS. W. W. BIDDULPH & W. GAMMAGE.

Bankers:

MESSRS. BARCLAY, BEVAN & CO., 54, Lombard Street, E.C.

In the Colony:

THE BANK OF AFRICA, LIMITED.

Solicitors:

MESSRS. JOHNSONS, UPTON, BUDD & ATKEY, 20, Austin Friars, E.C.

Auditors:

MESSRS.. DELOITTE, DEVER, GRIFFITHS & CO., 4, Lothbury, E.C.

Brokers:

MESSRS. HOLLAND, BALFOUR & HAMILTON, 2, Cushion Court, Old Broad Street, E.C.

Secretary (*pro tem.*):

MR. T. J. SEEL.

Temporary Offices:

5, COPTHALL BUILDINGS, E.C.

THIS Company has been formed for the purpose of supplying in South Africa the rapidly increasing demand for Electricity in all its applications to Light and Motive Power, and for the construction and sale of every article to which Electrical Science can practically and economically apply it. It nas secured the exclusive concession granted by the Anglo-American Brush Electric Light Corporation, Limited, to use their patents in South Africa, and will take over from the Concessionaires the plant, consisting of Steam Engines, Dynamo Machines, &c., which they have been using at the Cape for several months past, and the staff of Electricians, &c., now in charge there.

THE LONDON AND PROVINCIAL ELECTRIC LIGHTING & POWER GENERATING COMPANY, LIMITED.

The Company was registered May 8th, 1882, to acquire the patent rights of the CHERTEMPS ARC LAMP for the United Kingdom, the Channel Islands, and the Isle of Man, and certain agreements for the use of the GRAMME DYNAMO MACHINE, and the BRITISH INCANDESCENT LAMP in the United Kingdom. The Capital is £69,035 in fully paid shares of £5.

OFFICES: 21, Great Winchester Street, Old Broad Street, E.C.
WORKS: 42, Newington Causeway, S.E.

Estimates, Price Lists, &c., obtained on application to the Manager.

Digitized by Google

EASTERN ELECTRICAL LIGHT AND POWER CO., LIMITED.

Directors:

E. NOEL, M.P. (Chairman).
L. CLARK.
JAMES PENDER.
Genl. H. D. ABBOTT, C.B.
A. McARTHUR, M.P.
Maj. STRUTT (Managing Director).

Secretary:

T. M. COLLET, Esq.—Offices: Winchester House, Old Broad-street, E.C.

Capital, £150,000.

DUPLEX ELECTRIC LIGHT, POWER & STORAGE CO., LIMITED.

Directors:

C. DRAKE.
E. B. ILLIDGE.
W. G. F. HUNT.
F. J. LILLEY, M.D.
C. W. WHITE.

Secretary:

R. F. BELLIS, Esq.—Offices: 9, Soho-square, W.C.

Capital, £100,000.

THE SWAN UNITED ELECTRIC LIGHT COMPANY, LIMITED.

(SWAN AND OTHER PATENTS.)

INCORPORATED UNDER THE COMPANIES ACTS.

CAPITAL, ONE MILLION STERLING.
FIRST ISSUE—£500,000 IN 100,000 SHARES OF £5 EACH.

Directors;

JAMES STAATS FORBES, Esq., Chairman.—Deputy-Chairman, United Telephone Company, Ld.
E. W. BATT, Esq. (Messrs. Elias & Co.), 20, Great Winchester Street, E.C.
* J. C. STEVENSON, Esq., M.P.—Chairman, Swan's Electric Light Company, Limited.
Major-General J. S. TREVOR, R.E., C.S.I., late Director-General of Railways in India.
ERNEST VILLIERS, Esq.,—Director, General Steam Navigation Company.
* J. WILSON SWAN, Esq., of Newcastle-on-Tyne.
* R. E. B. CROMPTON, Esq., of London and Chelmsford. } Technical Directors.

* Will join the Board after the allotment.

Bankers:

THE NATIONAL PROVINCIAL BANK OF ENGLAND, LIMITED, and its Branches.

Solicitors:

MESSRS. ASHURST, MORRIS CRISP & CO., 6, Old Jewry, E.C.
MESSRS. J. & R. S. WATSON & DENDY, Newcastle-on-Tyne.

Broker:

W. CUTHBERT QUILTER, 14, King's Arms Yard, E.C.

Secretary (*pro tem.*):

J. H. IVORY,.

Offices:

9, ST. MILDRED'S COURT, LONDON, E.C.

This Company has been formed for the purpose of acquiring the established business of Swan's Electric Light Company, Limited, with its patents and other rights, for the United Kingdom; also the principal Foreign and Colonial patents of Mr. J. Wilson Swan, for or in connection with electric lighting.

Digitized by Google

THE BIRMINGHAM AND WARWICKSHIRE
...ish") Electric Light & Power Company,
LIMITED.

Brush System of Lighting & Lane-Fox Incandescent Lamp.

SOLE CONCESSIONARIES FOR THE COUNTIES OF WARWICK, STAFFORD, AND WORCESTER.

CAPITAL £100,000, in 50,000 SHARES of £2 EACH.

Patron.

THE RT. HON. LORD LEIGH, Stoneleigh Abbey, Kenilworth, Lord-Lieut. of the County of Warwick.

Directors.

D. R. RATCLIFF, Esq., J.P., Chairman, 8, Lancaster-terrace, Regent's-park, N.W.
THE HON. R. G., MOLYNEUX, 2, Lyall-street, Belgravia.
GEORGE MATTHEW FELTON, Esq., 6, 7 & 8, Well-street, E.C.
DAVID EVANS, Esq. (RICHARD EVANS & Co.), 24, Watling-street, E.C.
TOM F. HITCHINGS, Esq. (HITCHINGS, BEDFORD & Co.), London and Manchester.
CAPTAIN J. INMAN, Liverpool and Junior United Service Club.

Bankers.

BARCLAY, BEVAN, TRITTON & CO., Lombard-street, E.C.
BIRMINGHAM, DUDLEY, AND DISTRICT BANK, Birmingham.

Consulting Electrician:

F. C. PHILLIPS, Consulting Electrician to the Anglo-American (Brush) Electric Light Corporation, Limited, and Managing Electrician to the Hammond Electric Light & Power Supply Co., Limited.

General Manager.

FREDERICK PERTWEE.

Secretary (pro tem.)

H. W. ATKINS.

OFFICES: 110, Cannon-street, E.C.

EDISON'S ELECTRIC LIGHT COMPANY, LIMITED.

Directors:

Rt. Hon. E. P. BOUVERIE, P.C. (Chairman). R. B. WADE (Vice-Chairman).
VISC. ANSON. S. BIDWELL.
SIR J. LUBBOCK, Bart., M.P.

Secretary:

A. WHITE, Esq.—Offices: 74, Coleman-street, E.C.

Capital, £200,000.

EDISON INDIAN & COLONIAL ELECTRIC CO., LIMITED.

Directors:

MARQUIS OF TWEEDDALE (Chairman). Hon. W. St. J. BRODRICK, M.P.
H. SCHLESINGER Col. the Hon. W. Le P. TRENCH, R.E.
SIR G. WARRENDER, Bart. Maj. S. FLOOD PAGE (General Manager).

Secretary:

J. F. TAPE, Esq.—Offices: 6, Lombard-street, E.C.

Capital, £250,000.

Digitized by Google

ELECTRIC SUN LAMP & POWER COMPANY, LIMITED.

Directors:

LORD BRABOURNE (Chairman). SIR J. CARMICHAEL, Bart. (Deputy Chairman).
H. R. BRAND, M.P., G. C. T. BARTLEY.
R. MILBURN. E. GILMAN.

Secretary:

A. F. PENNELL, Esq.—Offices: St. Margaret's-chambers, Victoria-street, S.W.

Capital, £200,000.

THE ANGLO-SPANISH "BRUSH" ELECTRIC LIGHT AND POWER COMPANY, LIMITED.

CAPITAL £200,000, IN 40,000 SHARES OF £5 EACH.

Brush System of Electric Lighting and Lane-Fox Incandescent Lamp.

Directors.

EDMUND ETLINGER, Esq., Director of the Direct Spanish Telegraph Company, Limited.
REAR-ADMIRAL BROOKER, C.B., 67, Eardley Crescent, South Kensington, S.W.
FRANCIS FESSER, Esq., Vice-Chairman Provincial (Brush) Electric Light and Power Co., Limited.
JOSEPH KINCAID, Esq., M.I.C.E., 11, Great George Street, Westminster, S.W.
CHAS. WAPSHARE, Esq., Director of the South-Eastern (Brush) Electric Light and Power Company, Limited.

Madrid Committee.

HIS EXCELLENCY SENOR DON JOSÉ ECHEGARAY, Ex-Minister of Finance.
HIS EXCELLENCY SENOR DON LUIS DE RUTE, Sub-Secretary of the Home Department.
CAPTAIN GYBBON SPILSBURY, 9, Ferraz, Madrid.

Bankers.

MESSRS. BROWN, JANSON & Co., 62, King William Street, London, E.C.

Solicitors.

MESSRS. WALTER WEBB & Co., 23, Queen Victoria Street. E.C.

Auditors.

MESSRS. PRICE, WATERHOUSE & Co., 44, Gresham Street, E.C.

Secretary.

ARTHUR DAVIS, Esq.

Offices.

19 & 21, QUEEN VICTORIA STREET, LONDON, E.C.

This Company is formed to carry on in the Kingdom of Spain and in its important Colonies of Cuba, Porto Rico, and the Philippines, the business of supplying and enabling its licensees to supply Electricity for the purposes of Electric Lighting, Motive Power, Chemical Decomposition and other applications for which it is suitable.

Digitized by Google

ELECTRIC LIGHTING, CONTRACT, AND MAINTENANCE COMPANY, LIMITED.

Directors:

M. R. SMITH.
S. PIXLEY.
R. R. JACKSON.
J. C. F. LEE.
A. G. SANDEMANN.
W. H. MAUDSLAY.
Col. GOURAUD.
S. S. YOUNG.
G. NORMAN.

Secretary:

F. R. GRIGG, Esq.—Offices: 1, Queen Victoria-street, E.C.

Capital, £203,340.

ELECTRIC CARBON, STORAGE AND APPARATUS MANUFACTURING CO. OF SCOTLAND, LIMITED.

Directors:

D. R. RATCLIFF (Chairman).
W. P. HOPE.
J. D. FRASER.
T. LANDALE.

Secretary:

E. TERRANIAN, Esq.—Offices: 1, Sherborne-lane, E.C.

Capital, £150,000

THE METROPOLITAN BRUSH ELECTRIC LIGHT & POWER COMPANY, LIMITED.

CAPITAL £1,000,000, in 200,000 Shares of £5 Each.

Directors.

General Sir MICHAEL KENNEDY, R.E., K.C.S.I., 66, Prince's Square, Bayswater *(Chairman)*.
Mr. Alderman WHITEHEAD, Highfield House, Catford Bridge, S.E, *Vice-Chairman)*.
ARTHUR GRENFELL, Director, Bank of Egypt.
THOMAS DICKSON, Esq., Norwood Hill, Upper Norwood.
A. STEUGER, Esq., Dunbar Lodge, Loate Road, Clapham Park.
CHARLES DAY ROSE, Esq., Bartholomew House, E.C.

Bankers.

THE CONSOLIDATED BANK LIMITED, 52, Threadneedle, Street, E.C.

Brokers.

Messrs. WOOLLEY, LOWNDES & CO., 7, Finch Lane, E.C

Solicitors.

Messrs. WALTER WEBB, & CO., 23, Queen Victoria Street, E.C.

Auditors.

Messrs. PRICE, WATERHOUSE, & CO., 44, Gresham Street, E.C.

Manager.

J. KEETINGE-POLLOCK, Esq.

Secretary.

ROBERT WILSON, Esq.

Offices :—110, CANNON STREET, E.C.

Digitized by Google

GULCHER ELECTRIC LIGHT AND POWER CO., LIMITED.

Directors:

J. BLUNDELL (Chairman).
W. CROOKES.
Maj. W. D. GARRETT.
J. NORTON.
Maj.-Genl. A. H. BOGLE.
F. GILMAN (Managing).
W. C. HARVEY.
J. A. PLEDGER.

Secretary:

C. B. CHARLEWOOD, Esq.—Offices, 121, Bishopsgate-street, E.C.

Capital, £300,000.

FAURE ELECTRIC ACCUMULATOR COMPANY, LIMITED.

Directors:

Sir A. OTWAY, Bart., M.P. (Chairman).
C. S. GRENFELL.
Sir C. CLIFFORD.
H. RANKING.

Secretary:

H. CANNING, Esq.—Offices: 71, Queen-street, Queen Victoria-st., E.C.

Capital, £1,000,000.

ELECTRIC POWER STORAGE COMPANY, LIMITED.

Directors:

Sir D. COOPER.
J. I. COURTENAY.
F. GREEN.
J. S. SELLON.
W. M. BULLIVANT.
C. DORMAN.
W. LADD.
Col. F. G. STUART.
E. VOLCKMAN.

Offices: 6, Great Winchester-street, E.C.

Capital, £600,000.

ELECTRICAL INSULATOR MANUFACTURING CO., LIMITED.

Directors:

J. J. MINCHIN (Chairman).
A. R. ROBINSON.
EARL OF BUCHAN.
J. PETERS.
J. B. FOOTE.

Secretary:

E. H. WILSON, Esq.—Offices: 31, Lombard-street, E.C.

Capital, £100,000.

SOUTH EASTERN BRUSH ELECTRIC LIGHT & POWER COMPANY, LIMITED.

Directors:

General Sir M. KENNEDY, R.E., K.C.S.I. (Chairman), F. FESSER (Vice-Chairman).
R. CUNNINGHAM.
T. FRY.
C. DORMAN.
H. T. SANKEY.
C. WAPSHARE.

Secretary:

G. OFFOR, Esq.—Office: 11, Queen Victoria Street, E.C.

Capital, £100,000.

Digitized by Google

MAXIM-WESTON ELECTRIC COMPANY, LIMITED.

Directors:

ADMIRAL SIR E. A. INGLEFIELD, C.B. (Chairman).
J. S. CAMPBELL. SIR H. B. SANDFORD.
G. INVERARITY. H. WATT.

Engineer:

W. H. MASSEY, Esq.—Office: 47, Cannon Street, E.C.

Capital, £172,500.

W. T. HENLEY'S ELECTRIC LIGHT & POWER COMPANY, LIMITED.

Directors:

M. LLOYD, Q.C., M.P. (Chairman).
C. H. DYER. F. A. FAYNE.
R. HEWITT. W. T. HENLEY.
F. NEWTON.

Secretary:

J. OUSELEY, Esq.—Office: 8, Draper's Gardens, E.C.

Capital, £100,000.

PHŒNIX ELECTRIC LIGHT AND POWER COMPANY, LIMITED.

Directors:

G. CLERIHEW. E. ARTHUR.
W. S. GARLAND. SIR E. H. MEREDYTH, Bart.
CAPT. R. REVETT. J. W. CAMERON.

Secretary:

W. DUNLOP, Esq., 4, George Street, Hanover Square, W.

Capital, £250,000.

WEST MIDDLESEX ELECTRIC LIGHTING COMPANY, LIMITED.

Directors:

W. H. LEFEVRE. J. SWAN.
R. L. COSH. C. CORDINGLEY.
C. J. PARKER.

Secretary:

W. G. COLLEY, Esq.—Office: 14, King Street, West, Hammersmith.

Capital, £100,000.

BRITISH ELECTRIC LIGHT COMPANY, LIMITED.

Directors:

J. HUBBACK (Chairman). E. B. BRIGHT.
EDWARD EASTON. Maj-Genl. SIR H. R. GREEN, K.C.S.I., C.B.
F. WALTERS.

Secretary:

R. P. MILNE, Esq.—Offices: Heddon-street, Regent-street, W.

Capital, £72,210.

Has paid a dividend of 10 per cent. in 1880-1.

Digitized by Google

THE BRUSH MIDLAND ELECTRIC LIGHT & POWER CO., LIMITED.

Capital, £250,000. First Issue, £125,000.

Directors:

Richard H. GLYN, Esq., 88, London-wall, E.C.; Director of the Bank of British North America.
HENRY RUSSELL EVANS, Esq., J.P., Newport, Monmouthshire.
JOHN PADBURY GILLETT, Esq., Banbury, Oxon.
Capt. the Honourable FULKE GREVILLE, Brooks's Club, London, W.
JAMES PENDER, Esq., Rushmere Lodge, Leighton Buzzard.

Bankers.

GLYN, MILLS, CURRIE, & CO., 67, Lombard-street, E.C.

Manager:

MARTIN FRADD.

Engineer & Electrician.

B. M. DRAKE.

Secretary:

H. N. MYERS.—Offices: 31, Lombard-street, London, E.C.

Sole Concessionaires for the Brush System for Cheshire, Nottinghamshire, Shropshire Montgomeryshire, Merionethshire, Carnarvonshire, Denbighshire, Flintshire, Lincolnshire, Oxfordshire, Northamptonshire, Leicestershire, Berkshire and Anglesea.

DUBLIN ELECTRIC LIGHT COMPANY, LIMITED.

Directors:

T. RIVINGTON (Chairman).
E. D. GRAY, M.P.
T. J. MONTGOMERY.
J. BAILEY, C.E.,
T. MAYNE.
R. WORTHINGTON.

Secretary:

G. R. JONES, Esq.—Office: 37, College-green, Dublin.

Capital, £150,000.

BRUSH ELECTRIC LIGHT AND POWER CO. OF SCOTLAND, LIMITED.

Directors:

EARL OF CRAWFORD AND BALCARRES (Chairman).
R. EWING.
T. DICKSON (Managing).
Hon. A. PONSONBY.
W. LADD.
J. B. ALSTON.

Secretary:

F. M. BROCKELBANK, Esq.—Offices: 9, New Broad-street, London, E.C.

Capital. £150,000.

HAMMOND ELECTRIC LIGHT & POWER SUPPLY CO., LIMITED.

Directors:

Sir C. L. YOUNG, Bart.
R. HAMMOND (Managing).
R. COBB.
W. LAW.

Secretary:

A. THOMPSON, Esq.—Offices: 110, Cannon-street, E.C.

Capital, £124,900.

Digitized by Google

ANGLO-AMERICAN BRUSH ELECTRIC LIGHT CORPORATION.
LIMITED.

Directors:

Sir H. W. TYLER, M.P. (Chairman). J. S. SELLON (Vice-Chairman),
Major J. CHILDS. C. DORMAN.
W. LADD. Col. F. G. STEWART.
W. M. BULLIVANT. J. I. COURTENAY.
T. J. MONTGOMERY.

Secretary:

W. J. CORDNER, Esq.—Offices: Belvedere-road, Lambeth, S.E.

Capital, £400,000.

Has paid a dividend of 12½ per cent. in 1881, and made a distribution of 100 per cent. in August, 1882, from money received by the sale of concessions.

JABLOCHKOFF ELECTRIC LIGHT & POWER CO., LIMITED.

Directors:

J. WILSON (Chairman), A. R. MARTEN.
Col. E. KEATE. J. T. LAWRENCE.
Sir J. N. McKENNA, M.P., H. E. RODWELL.
Sir W. SMITH, Bart. Maj. A. CAMPBELL-WALKER.

Secretary:

F. R. REEVES, Esq.—Offices: 1, Great Winchester-street, E.C.

Capital, £300,000.

J. B. ROGERS ELECTRIC LIGHT & POWER CO., LIMITED.

Directors:

LORD GRAVES (Chairman). Capt. W. ARTHUR, R.N., C.B.
J. C. BROWNE, M.D. W. H. DAVIS.
Sir S. J. HILL, C.B., K.C.M.G. FITZ H. LIEBENROOD.
Col. H. WORTHAM, R.A. J. B. ROGERS.

Secretary:

F. WISDOM.—Offices: 47, Holborn Viaduct, E.C.

Capital, £510,000.

INDIAN & ORIENTAL ELECTRICAL STORAGE AND WORKS CO., LIMITED.

Directors:

E. NOEL, M.P. (Chairman). W. M. BULLIVANT.
EARL OF CRAWFORD AND BALCARRES. A. McARTHUR, M.P.
Col. F. G. STEUART. Maj. C. H. STRUTT.
J. S. TROTTER. T. M. COLLETT (Manager).

Secretary:

H. C. HEYWOOD, Esq.—Offices: Winchester House, Old Broad-street, E.C.

Capital, £150,000.

YORKSHIRE BRUSH ELECTRIC LIGHT & POWER COMPANY, LIMITED.

Directors:

H. W. LOWE (Chairman), Major-Gen. BATES, H. C. BYRDE, H. W. MAYNARD.

Secretary:

G. L. MORTON, Esq.

Offices: 326, Mansion House Chambers, Queen Victoria Street, E.C.

Capital, £133,266.

Digitized by Google

LIST OF
BRITISH ELECTRICAL PUBLICATIONS
WITH
NAMES AND ADDRESSES OF PUBLISHERS,
PRICES, &c.

Arithmetic of Electric Lighting. By R. E. Day, M.A., Evening Lecturer in Experimental Physics at King's College, London. Macmillan & Co., London. Pott 8vo... .. .. 2/0

Berly's British, American and Continental Electrical Directory and Advertiser. "The Electrician's Vade Mecum," containing a complete Record of all the Industries directly or indirectly connected with Electricity and Magnetism, and the Names and Addresses of Manufacturers, &c. Published by J. A. Berly, 16, New Bridge Street, London, (First Issue, 1882.) 7/6

Dictionary of Engineering. Spon's Dictionary of Engineering—Civil, Mechanical, Military and Naval, with technical terms in French, German, Italian, and Spanish. E. & F. N. Spon, London. 3,100 pp., and nearly 8,000 engravings, in super-royal 8vo., in 8 divisions .. £5 8/0

Complete in 3 vols., cloth £5 5/0

Bound in a superior manner, half morocco, top edge gilt, 3 vols... .. .. £6 12/0

Earth, The: Its Physical Condition, and most Remarkable Phenomena. By W. M. Higgins. Sixth Edition. Numerous Illustrations. James Blackwood & Co., London.. .. ..

Electric Illumination, Its Production and Maintenance. W. H. Maw & J. Dredge. Engineering, London. 2 vols. Each 21/0

Electric Light: Its Production and Use. Embodying plain Directions for the Working of Galvanic Batteries, Electric Lamps, and Dynamo-Electric Machines. By J. W. Urquhart, C.E. Edited by F. C. Webb, M.I.C.E., M.S.T.E. Crosby, Lockwood, & Co., 7, Stationers' Hall-court, London, E.C. Crown 8vo., with Numerous Illustrations, cloth (postage 5d.) 7/6

Electric Light Popularly Explained, The. By A. Bromley Holmes, Assoc. Mem. Inst. C.E., with 32 Illustrations. Bemrose & Sons, 23, Old Bailey, London, and Derby 1/0

Electric Light, All about the. Ward, Lock & Co., London 1/0

Electric Light, The, in its Practical Application. Paget Higgs, LL.D., D.Sc. E. & F. N. Spon, London.. .. .. 9/0

Electric Lighting and its Practical Application. J. N. Shoolbred, B.A., M. Inst. C.E. Hardwicke & Bogue, London .. ..

Electric Lighting. Electric Lighting; its State and Progress, and its probable Influence upon the Gas Interests, by J. T. Sprague, Mem. Soc. Telegraph Engineers. E. & F. N. Spon, London. 8vo., sewed. 1/0

Electric Lighting. Electric Lighting by Incandescence, and its Application to Interior Illumination; a Practical Treatise, with 96 Illustrations, by W. E. Sawyer. E. & F. N. Spon, London. 8vo., cloth 10/6

Electric Lighting. Useful Information on Practical Electric Lighting, by Killingworth Hedges, C.E., Mem. Inst. M.E. Fifth Edition. With Illustrations. E. & F. N. Spon, London. Crown 8vo., cloth 4/0

Electric Lighting. The Electric Light for Industrial Uses, by R. E. Crompton. E. & F. N. Spon, London. 8vo., sewed 1/0

Electric Lighting. Incandescent Electric Lights, with particular reference to the Edison Lamps at the Paris Exhibition, by Count du Moncel and W. H. Preece. E. & F. N. Spon, London. 18mo, boards 2/0

Electric Lighting and Transmission of Power. Professor Ayrton, F.R.S. Cassell & Co., London

Electric Railways. Electric Railways; abstract of a Lecture delivered March 24th, 1882, at the Royal Institution, by Professor Ayrton, F.R.S. E. & F. N. Spon, London. 8vo., sewed 0/6

Electric Testing of Telegraph Cables (A Guide for). Capt. Von Hoskiœr. E. & F. N. Spon, London 4/6

Digitized by Google

Electric Transmission of Power. Paget Higgs, LL.D., D.Sc. E. & F. N. Spon, London .. 3 6

Electric Telegraph. Handbook of Electrical Diagrams and Connections, by C. H. Davis and Frank B. Rae. E. & F. N. Spon, London. Oblong 8vo., cloth 10 6

Electric Telegraph. Modern Practice of the Electric Telegraph, by Frank L. Pope. Third edition. With Numerous Wood Engravings. E. & F. N. Spon, London. 8vo., cloth .. 9 0

Electric Telegraph. A Handbook of the Electro-Magnetic Telegraph. By A. E. Loring, Practical Telegrapher. E. & F. N. Spon, London. 18mo., boards 2 0

Electric Telegraph. Electricity and the Electric Telegraph. With numerous Illbstrations. By George B. Prescott. Fourth Edition. E. & F. N. Spon, London. 8vo., cloth £1 1 0

Electric Telegraph. Electrical Tables and Formulæ for the use of Telegraph Inspectors and Operators, compiled by Latimer Clark and Robert Sabine. With Wood Engravings. E. & F. N. Spon, London. Crown 8vo., cloth 12 6

Electric Telegraph. Electro-Telegraphy, by Frederick S. Beechey, Telegraph Engineer; a Book for Beginners. E. & F. N. Spon, London. Fcap. 8vo., cloth 1 0

Ditto, sewed 0 6

Electrical and Magnetic Measurement, with Answers, Exercises in. By R. E. Day, M.A. Longman & Co., London. 16mo. 2 6

Electrical Magazine (The). Conducted by Chas. Walker. 2 vols. 8vo. Hf. calf. (1845-6). Bernard Quaritch. 12 0

Electrical Phenomena and Theories; Notes of a course of Seven Lectures delivered at the Royal Institution, A.D. 1870. By John Tyndall, D.C.L., LL.D., F.R.S. Longmans & Co., London. Crown 8vo., sewed 1 0

Ditto, ditto, cloth 1 6

Electrical Review (weekly). Haughton & Co., 22, Paternoster-row, London, E.C. Price 4d. Annual subscription 19 5

Electrical Society. Proceedings of the Electrical Society of London, during 1841-43, forming Vol. I., (all Published). 565 pp. Plates and Woodcuts. (1843). Royal 8vo. Hf. calf. Bernard Quaritch 12 0

Electrical Standards. Reports of the Committee on Electrical Standards appointed by the British Association, revised by Sir W. Thomson, Dr. J. P. Joule, Professors Clark, Maxwell, and Fleeming Jenkin, with a Report to the Royal Society on Units of Electrical Resistance, by Prof. F. Jenkin. Edited by Professor Fleeming Jenkin, F.R.S. E. & F. N. Spon, London. Plates, 8vo., cloth 9 0

Electricité en 1857 et 1858, Révue des applications de l'. Three folding Plates. 8vo. Hf. russia. (Paris, 1859). Bernard Quaritch 6 0

Electricity. Sir W. Snow Harris. Crosby, Lockwood & Co., London. 1 6

Electricity, The Student's Text-book of. H. M. Noad, F.R.S., F.C.S. Crosby, Lockwood & Co., London 12 6

Electricity, A Manual of. H. M. Noad, F.R.S., F.C.S. Fourth Edition, Crosby, Lockwood & Co., London £1 4 0

Electricity, its Theory, Sources, and Applications. J. T. Sprague. E. & F. N. Spon, London 8 0

Electricity and Magnetism, Abridgments and Specifications relating to. Patent Office, London; A.D. 1766—1857 32

Do. A.D. 1858—1866 27

Electricity and Magnetism—Abridgments of Specifications—

Division I.—Generation of Electricity and Magnetism (A.D. 1867 to 1876). In course of preparation 0 0

Division II.—Conducting and Insulating (A.D. 1867—1876). In course of preparation .. 0 0

Division III.—Electric Signalling or Transmitting and Receiving Apparatus, and Instrument for exhibiting Electric Effects (A.D. 1867—1876). In course of preparation 0 0

Division IV.—Electric Lighting, Igniting and Heating. Parts I. and II., in one vol. (A.D. 1839—1876) 0 0

Division V.—Electro Deposition and Electrolysis (A.D. 1867—1876). In course of preparation 0 0

Division VI.—Electro Motive Power Apparatus and Miscellaneous Applications of Electricity (A.D. 1867—76). In course of preparation. Patent Office, London 0 0

Electricity, Magnetism and Acoustics, The Handbook of. Geo. Carey Foster. Crosby, Lockwood & Co., London 5 0

Electricity as a Motive Power. Professor W. E. Ayrton. E. & F. N. Spon, London 0 6

Electricity. Catalogue of Books and Papers relating to Electricity, Magnetism, and the Electric Telegraph, &c., including the Ronalds Library, compiled by Sir Francis Ronalds, F.R.S., together with a Biographical Memoir of the Author. Edited by Alfred J. Frost, Assoc. Soc. T.E., Member of the Library Association of the United Kingdom. E. & F. N. Spon, London. 8vo., sewed. 8 0

Ditto, ditto, large paper 12 6

Digitized by Google

Electricity. A Handbook of Electrical Testing, by H. R. Kempe, Mem. Soc. Telegraph Engineers, Assoc. Mem. Inst. C.E. New Edition, Revised and Enlarged. E. & F. N. Spon, London. Crown 8vo., cloth. 12/6

Electricity. On the Storage of Electricity. A Paper read before the Society of Arts, by Silvanus P. Thompson, B.A., D.Sc., F.R.A.S., Professor of Experimental Physics in University College, Bristol. E. & F. N. Spon, London. Cuts, 8vo., sewed 0/6

Electricity. Lecture on the Storage of Energy, delivered at the London Institution by Professor Ayrton, F.R.S. E. & F. N. Spon, London. 8vo., sewed 0/6

Electricity and Magnetism, A Treatise on. By the late J. Clerk Maxwell, M.A., F.R.S., Professor of Experimental Physics, Cambridge. Edited by W. D. Niven, M.A., Fellow of Trinity College, Cambridge. Oxford University Press Warehouse, 7, Paternoster-row, London. Two vols., Demy 8vo., cloth £1 11/6

Electricity, An Elementary Treatise on. By the same Author. Edited by W. Garnett, M.A., Fellow of St. John's College, Cambridge. Oxford University Press Warehouse, 7, Paternoster-row, London, E.C. Demy 8vo., cloth 7/6

Electricity, An Introduction to the Theory of. By Linnæus Cumming, M.A., one of the Masters of Rugby School. With Illustrations. Macmillan & Co., London. Crown 8vo. 8/6

Electricity to Railway Working, The Application of. By W. E. Langton, Engineering Superintendent of Post-Office Telegraphs. With numerous Illustrations. Macmillan & Co., London. Extra fcap. 8vo 4/6

Electricity and Magnetism. By Fleeming Jenkin, F.R.SS.L. & E.M.I.C.E. Latest Edition, with an Appendix on the Telephone and Microphone, and 177 Woodcuts. (Text-Books of Science.) Longmans & Co., London. Fcap. 8vo. 3/

Electricity at the Royal Institution of Great Britain, Lessons in. By John Tyndall, D.C.L., LL.D., F.R.S. With 58 Woodcuts and Diagrams. Longmans & Co., London. Crown 8vo 2/6

Electricity in Medicine and Surgery, A Text Book of, for the use of Students and Practitioners. George Vivian Poore, M.D. Lond., M.R.C.P., &c., Assistant Physician to University College Hospital and Senior Physician to the Royal Infirmary for Children and Women. Crown 8vo. Smith, Elder & Co., London.. .. .. 8/6

Electricity, A Treatise on, in Theory and Practice. De La Rive (Ang.) Translated by C. V. Walker, 3 vols. Woodcuts; scarce. 8vo. cloth. (1853-8). Bernard Quaritch £3 3/0

Electricity, The Modern Applications of (Hospitalier, E.) Translated and Enlarged by Julius Maier, Ph.D. With 170 Illustrations. Kegan, Paul, French & Co., London. Demy 8vo., 16/

Electricity. J. E. H. Gordon, Static Electric Induction. Four Lectures at the Royal Institution, 1879, with diagrams. Sampson, Marston, Low & Co., London. 16mo., limp 3/6

Electricity and Magnetism. J. E. H. Gordon. Physical treatise, with 52 page Plates, many Diagrams and an Index. A new Edition, founded on the latest researches, is in preparation. Sampson Low, Marston and Co. £1 10/0

Electricity and Magnetism, Elementary Lessons in. By Silvanus P. Thompson, Professor of Experimental Physics in University College, Bristol. With Illustrations. Fcap. 8vo. .. 4/6

Electricity. Ferguson. W. T. Emmott, Manchester 3/6

Electricity & Magnetism. F. Jenkin. W. T. Emmott, Manchester. 3/6

Electro Metallurgy, The Art of. G. Gore, LL.D., F.R.S. Longmans, Green & Co., London 3/6

Electro Metallurgy. Comprising the Newest Processes of Depositing Gold, Silver, Copper, and other Metals. By James Napier, F.R.S.E., F.C.S., &c. With numerous Illustrations. Fifth Edition. Charles Griffin & Co., London 7/6

Electro Metallurgy Practically Treated. By Alexander Watt, F.R.S.S.A. Seventh Edition. Enlarged. Crosby, Lockwood, & Co., 7, Stationers' Hall-court, London, E.C. Now ready, 12mo., with Illustrations, cloth (post free) 3/0

Engineering (weekly.) C. Gilbert, 35, Bedford-street, Strand, W.C. Subscription per annum £1 9/2

Experimental Researches in Electricity (Faraday, M.). The Original Papers published by the Royal Society, extracted from their Transactions. Series I-XXX, without Nos. XIX-XXI. Royal 4to. Plates. (1832-55.) Professor Faraday's own Copy, with Autograph Signature and corrections in Part X. Bernard Quaritch £5

Experimental Researches in Electricity (Faraday, M.). Original issues. Bernard Quaritch. Three vols., 8vo., with 17 Plates, cloth. (1839-55) £4

Experimental Researches in Electricity (Faraday M.). Re-issued in exact typographical *fac simile*. Bernard Quaritch. Three vols., 8vo., 17 Plates, cloth. (1839-55) £2 8/0

Faraday's Lectures on Electricity and Magnetism delivered before the Royal Institution of Great Britain, and Papers on the same subjects contributed to the Philosophical Magazine and the Scientific Periodicals, 40 *opuscula*, 8vo. (1832-59) £1

Another lot of 18 lectures 7/6

Galvanism. Sir W. Snow Harris. Crosby, Lockwood & Co, London 1/6

Digitized by Google

Griffin, C. & Co., Publishers of Electrical Publications, Exeter-street, Strand, London, W.C.

Heat, Numerical Examples in. For the Use of Teachers and Students preparing for Science Examinations, with Answers. By R. E. Day, M.A., Longmans & Co., London. Crown 8vo. 1/6

Heat, A Short Manual of, for the Use of Schools and Science Classes. By the Rev. A. Irving, B.A. and B.Sc., Second Master of the High School, Nottingham. With 33 Diagrams. Longmans & Co., London. Small 8vo. 2/6

Heat, Theory of. By J. Clerk Maxwell, M.A., F.R.SS., L. & E. (Text Books of Science.) Latest Edition, thoroughly revised. Longmans & Co., London. Fcap. 8vo. with Woodcuts 3/6

Horology, A Treatise on Modern, in Theory and Practice. Translated from the French of Claudius Saunier by Julien Tripplin, Besançon Watch Manufacturer, and Edward Rigg, M.A., Assayer in the Royal Mint. 860 pp., 78 Woodcuts, and 21 Hand-coloured Copper Plates, describing more than 300 subjects. Bound, Plates on Guard. Imperial 8vo. J. Tripplin, London £2 2/0

Hydraulics, Elements of Practical, for the Use of Students in Engineering and Architecture. By Samuel Downing, LL.D., Professor of Civil Engineering in the University of Dublin. Third Edition, revised and enlarged. Part I. with 81 Woodcuts. Longmans & Co., London. 8vo. 5/6

Iron and Steel. W. H. Greenwood. Cassell & Co., London. .. ..

Journal of the Society of Telegraph Engineers. Edited by Prof. W. E. Ayrton. Published by E. & F. N. Spon .. ..

Journal of the Society of Telegraph Engineers and of Electricians. E. & F. N. Spon, London

KNIGHT & CO., Publishers of Electrical Publications, 90, Fleet-street, London, E.C. Electric Light Act (Glinn's).

Light; Notes of a Course of Nine Lectures delivered at the Royal Institution A.D. 1869. By John Tyndall, D.C.L., LL.D., F.R.S. Longmans & Co., London. Crown 8vo., sewed .. 1/0

Cloth 1/6

Lighting by Electricity, Report from the Select Committee on, 1879. Eyre & Spottiswoode, London 3/6

Lightning Conductors. R. Anderson. R. J. Newall & Co., London .. ..

Magnetism and Electricity. Frederick Guthrie. William Collins, Sons & Company, London 3/0

Magnetism and Electricity. John Angell. William Collins, Sons & Company, London .. 1/0

Magnetism and Electricity. Enlarged edition. John Angell. William Collins, Sons and Company, London 1/6

Magnetism, Rudimentary. Sir W. Snow Harris, F.R.S. Crosby, Lockwood & Co., London .. 4/0

Magnetism, A Treatise on, General and Terrestrial. By H. Lloyd, D.D., D.C.L., Provost of Trinity College, Dublin, formerly Professor of Natural Philosophy in the University. Longmans & Co., London. 8vo. 10/6

Mechanics, Essential Elements of Practical. O. Byrne. W. T. Emmott, Manchester.. .. 7/6

Natural Philosophy. An Elementary Treatise. By Professor A. Privat Deschanel, of Paris. Translated and Edited, with Extensive Additions, by J. D. Everett, M.A., D.C.L., F.R.S.E., Professor of Natural Philosophy in the Queen's College, Belfast. Illustrated by 783 Engravings on wood, and 3 Coloured Plates. Blackie & Son, London. Medium 8vo., cloth. This Edition has been revised throughout, and additions inserted, bringing it up to the present time.. .. .. 18/0

Also in separate parts, limp cloth. Each 4/6

Natural Philosophy, Notes on; being the Substance of a Course of Lectures delivered at Guy's Hospital. George F. Rodwell, F.R.A.S, Science Master at Marlborough College. J. & A. Churchill, 11, New Burlington-street, London, W. With 48 Engravings, 166 pp., Fcap. 8vo. (1873) 5/0

Natural Philosophy for Beginners. By I. Todhunter, M.A., F.R.S. Part I. The Properties of Solid and Fluid Bodies. Macmillan & Co., London. 18mo. 3/6

Part II. Sound, Light, and Heat. Macmillan & Co. 18mo. 3/6

Natural Philosophy for General Readers and Young Persons. A Course of Physics divested of Mathematical Formulæ, expressed in the language of daily life, and illustrated with Explanatory Figures elucidating the Principles and Facts brought before the reader. Translated from Ganot's *Cours de Physique*, by E. Atkinson, Ph.D., F.C.S., Professor of experimental Science, Staff College, Sandhurst. Third Edition, with 2 Plates and 454 Woodcuts. Longmans & Co., London. Crown 8vo. 7/6

Philosopher, Tate's Little, Part IV. The Natural History of Familiar Things. Longmans & Co., London. Woodcuts. 18mo. 1/0

Philosopher, The Little; or, the Chemistry, Mechanics and Physics of Familiar Things. By Thomas Tate, F.R.A.S. With 203 Woodcuts. Longmans & Co., London. 18mo., 3/6

or in Three Parts, price .. .. 1/0 each

Digitized by Google

Physical Measurements, An Introduction to. Dr. F. Kohlrausch. Translated by T. H. Waller, B. A., B.Sc., and H. R. Proctor, F.C.S. With Engravings. J. & A. Churchill, 11, New Burlington Street, W. 8vo. In the press. Ready in January .. .. ..

Physical Science, Intermediate Text-Book of. By F. H. Bownan, D.Sc., F.R.A.S., F.L.S., Fellow of the Geological, Chemical and Royal Microscopical Societies, Straton Prizeman and Gold Medallist in Technology, University of Edinburgh. Illustrated. Cassell & Co., London. Extra fcap. 8vo, cloth, ... 3/6

Physics. By Balfour Stewart, F.R.S., Professor of Natural Philosophy in the Victoria University, the Owen's College, Manchester. With numerous Illustrations. New Edition. With Questions. Macmillan, London. 18mo. 1/0

Physics, Elementary Course of Practical. By A. M. Worthington, M.A., F.R.A.S., Assistant-Master of Clifton College. New Edition, revised. With Illustrations. Rivington, London. Crown 8vo. 2/6

Physics, Elementary Text-Book of. By J. D. Everett, M.A., D.C.L., F.R.S.E., Professor of Natural Philosophy in Queen's College, Belfast. Illustrated by many Woodcuts. Blackie & Son, London. Extra foolscap 8vo., cloth neat 3/6

Physics, Elementary Treatise on, Experimental and Applied, for the use of Colleges and Schools. Translated and edited from Ganot's *Traité élémentaire de Physique* (with the Author's sanction) by E. Atkinson, Ph.D. F.C.S. Tenth Edition, revised and enlarged, with 4 Coloured Plates and 844 Woodcuts. Longmans & Co., London. Large crown 8vo. 15/0

Physics, Lessons in Elementary. By Balfour Stewart, F.R.S., Professor of Natural Philosophy in the Victoria University, the Owens College, Manchester. With numerous Illustrations and Chromolitho of the Spectra of the Sun, Stars, and Nebulæ. New Edition. Macmillan & Co., London. Fcap. 8vo... .. .. 4/6

Physics or Natural Philosophy, The Elements of. By Neil Arnott, M.D., F.R.S. Seventh Edition, in one volume, revised from the Notes of the Author, and edited by A. Bain, LL.D. and by A. S. Taylor, M.D., F.R.S. With 326 Woodcuts. Longmans & Co., London. Crown 8vo. 12/6

Physics, Questions on Balfour Stewart's Elementary Lessons in. By Professor Thomas H. Cole, Owen's College, Manchester. Macmillan & Co., London. Fcap. 8vo. 2/0

Popular Lectures on Scientific Subjects. By H. Helmholtz, Professor of Physiology in the University of Berlin. Translated by E. Atkinson, Ph.D., F.C.S., Staff College, Sandhurst. With an Introduction by John Tyndall, F.R.S., and 68 Woodcuts. Longmans & Co. London, 2 vols., crown 8vo, price 15/0, or separately 7/6

Practical Mechanics. By Professor John Perry, M.E. With numerous Illustrations. Cassell

Reports of the Committee on Electrical Standards, appointed by the British Association for the advancement of Science. Edited by Professor Fleming Jenkin, F.R.S. E. & F. N. Spon, London 9/0

Sampson, Low, Marston & Searle, Publishers of Electrical Publications, Crown-buildings, Fleet-street, London, E.C.

& Co., London. Extra fcap. 8vo, cloth 3/6

Science Lectures at South Kensington. Vol. I. Containing Lectures by Capt. Abney, Professor Stokes, Professor Kennedy, F. G. Bramwell, Professor G. Forbes, H. C. Sorby, J. T. Bottomley, S. H. Vines, and Professor Carey Foster, Macmillan, London. Crown 8vo. .. 6/0

Vol. II. Containing Lectures by W. Spottiswoode, P.R.S., Professor Forbes, Professor Pigot, Professor Barrett, Dr. Burdon-Sanderson, Dr. Lauder Brunton, F.R.S., Professor Roscoe, and others. Macmillan, London. Crown 8vo. 6/0

Steam Engine for Practical Men, The Theory and Action of the. By W. H. Northcott, C.E, Demy 8vo, 224 pages, with numerous Diagrams and Tables. Cheap Edition. Cassell & Co., London. Cloth, ... 3/6

Student's Text-book of Electricity, The. By Henry M.Noad, Ph.D., F.R.S., F.C.S. New Edition, carefully Revised. With an Introduction and Additonal Chapters. By W. H. Preece, M.I.C.E., Vice-President of the Society of Telegraph Engineers, &c. Crosby, Lockwood, & Co., 7, Stationers' Hall-court, London, E.C. Crown 8vo., 600 pp., with 470 Wood Engravings, cloth 12/6

Submarine Telegraphy. W. H. Preece, C.E., & J. Sivewright, M.A. Longmans, Green & Company, London 3/6

Teeth of Wheels. A Practical Treatise on the Teeth of Wheels, by Professor S. W. Robinson. E. & F. N. Spon, London. 18mo, boards 2/0

Telegraph Cables. Laying and Repairing Electric Telegraph Cables, by Capt. V. Hoskicer, Royal Danish Engineers. E. & F. N. Spon, London. Crown 8vo., cloth 3/6

Telegraph Construction. By J. C. Douglas. Second Edition. Charles Griffin & Co., London 15/0

Telegraph Guide, The. With numerous Illustrative Diagrams. Compiled by the Officers of the Royal Engineers employed in the Post-Office Telegraph Service. Cassell & Co., London. Cloth, ... 1/0

Digitized by Google

Telegraph Cables. Guide to the Electric Testing of Telegraph Cables, by Capt. V. Hoskier, Royal Danish Engineers. E. & F. N. Spon, London. Second Edition, Revised, crown 8vo., cloth 4 6

Telegraph and Phonograph, All about the. Ward, Lock & Co., London 1 0

Telegraph, The Electric. E. B. Bright, F.R.A.S. Crosby, Lockwood & Company, London.. 2 6

Telegraph, The Electric. R. Sabine, C.E., F.S.A., &c. Crosby, Lockwood & Co., London .. 3 0

Telegraph, Handbook of the. R. Bond. Fourth Edition. Crosby, Lockwood & Co., London.. 3 0

Telegraphic Cable, Report of the Joint Committee appointed to inquire into the Construction of Submarine (1861). Eyre & Spottiswoode, London. Very scarce £2 2 0

Telegraphic Journal and Electrical Review. Published by Haughton & Co., London. 9 vols., 1873-81. Each 10 6

Telegraphy. W. H. Preece, C.E., and J. Siveright, M.A. Second Edition. Longmans, Green & Co., London.. .. .. 3 6

Telephone, The History of Bell's. Kate Field. Bradbury, Agnew & Co., London 0 6

Telephone, The, and How to Make it. Prof. A. E. Dolbear. Sampson Low, Marston, Searle and Rivington, London 1 0

Telephone. The Speaking Telephone, Electric Light, and other Electrical Inventions, by G. B. Prescott. Fully Illustrated. E. & F. N. Spon, London. 8vo., cloth 12 6

Telephone. Researches in Electric Telephony, being a Lecture delivered before the Society of Telegraph Engineers, by Professor Alexander Graham Bell. Profusely Illustrated. Published under the sanction of the Society of Telegraph Engineers. E. & F. N. Spon, London. 8vo., sewed 1 6

Telephone. Practical information for Telephonists, by T. D. Lockwood. E. & F. N. Spon, London. Crown 8vo., cloth 5 0

Testing Telegraph Lines, Instructions for. Louis Schwendler. Second Edition. 2 vols. Trübner & Co., London £1 1 0

Useful Rules and Tables for Engineers (Professor Rankine's). Sixth Edition. With Appendix: Tables, Tests, and Formulæ for the use of Electrical Engineers. By Principal Jamieson, C.E., F.R.S.E. With Diagrams. Published by Charles Griffin & Co., London 10 6

Digitized by Google

APPENDIX,

CONTAINING THE

RULES OF THE LEADING BRITISH INSURANCE COMPANIES WITH REGARD TO ELECTRIC LIGHTING.

TABLE SHEWING THE EXTENT OF THE TELEGRAPH LINES OF THE WORLD.

LIST OF THE BRITISH PATENTS TAKEN OUT IN 1882 RELATING TO ELECTRICITY.

FIRE RISK AND THE ELECTRIC LIGHT.—Messrs. Crompton and J. E. H. Gordon, in a letter to the *Times* of the 10th inst., give the rules of the Phœnix Fire Insurance Office for electric light installations, compiled by Mr. Heaphy, C.E., and which read as follows:—

1. All rods or wires in a building to be so placed as to be thoroughly and easily inspected.

2. All rods and wires to have sufficient sectional area, so as to allow at least 50 per cent. more electricity being safely sent through them than will ever possibly be required for the lights they supply.

3. All main rods (or wires) should be thoroughly well insulated with a material rendered as non-inflammable as possible, and further protected by coverings of a substantial and durable character. Wherever practicable the rod (or wires) should be enclosed in iron, brass, lead, terra-cotta, or earthenware pipes, the space between the rod (or wires) and the pipe being completely filled with a high insulating compound. Or the rods (or wires) should be thoroughly well insulated with a material as non-inflammable as possible, and might be placed in slate beading or slate boxes. To be approved by the inspector from the fire office.

4. The wires for "arc lights" to be insulated and protected in the same manner as the aforesaid main rods or wires. The wires, unless inclosed in pipes or slate boxes, &c., as described under requirements No. 3, should be laid at least eight inches from each other, and eight inches from all other wires, metal, or conducting substances. Or where this from the nature of the case is impossible, then the wires must be kept at least one inch apart, and one inch from all conducting substances by a continuous rigid non-conducting material, to be approved by the inspector from the fire office.

5. The wires for the incandescent lights should be at least two-and-a-half inches from each other, and two-and-a-half inches at least from all other wires, metal, or other conducting substances; they must be thoroughly well insulated with a material rendered as non-inflammable as possible, and protected by coverings of a substantial and durable character; and where external injury is possible they should be insulated and enclosed in iron, lead, brass, terra-cotta, or earthenware pipes, or in slate beading or slate boxes, in the manner described in requirements No. 3 for the main rods.

(In non-hazardous risks the wires, having been thoroughly well insulated with a material rendered as non-inflammable as possible, should, where practicable, be inclosed in wood beading, and the wires kept apart by a continuous fillet of wood at least one inch wide.)

6. All rods or wires passing through floors or partitions must be insulated, and enclosed in iron, brass, terra-cotta, or earthenware pipes, or slate beading, in the manner described under requirements No. 3.

7. All rods or wires passing through the exterior walls of buildings must be insulated and enclosed in pipes as described in requirements No. 3, and the insulated material must be impervious to moisture.

8. All rods or wires in a building that are exposed to moisture must have a waterproof covering to their insulating material.

9. The fastenings of all rods or wires to be composed of an approved non-conducting material.

10. Any material employed for conducting the electricity in lieu of rods or wires must be protected in the same manner as the before-mentioned rods or wires.

11. All lamps, switches, or any bare connections must be so mounted that leakage of electricity from them is rendered impossible.

12. When two wires are joined together the junction must be soldered, or secured by a thoroughly clean binding screw or clamp.

13. Wherever a branch wire is led off the main conductor to supply current for one or more incandescent lamps, a short length of lead or other fusible wire must be inserted between the main conductor and one end of the branch; and the lead wire must be of such section and nature that if the current passing through it exceeds the normal current by 50 per cent., then it will fuse and disconnect the branch.

14. No naked lights allowed. If "arc lights" are used, the globes must be enclosed at the base, and have chimneys so arranged that no sparks or flame can escape. The globes must also be covered round with wire netting.

Digitized by Google

15. All "connections," "cut outs," or "resistance coils" must be placed in such a secure manner that no danger can arise in the event of their heating.

16. A shut-off must be placed at the point of entrance to each building.

17. No ground circuit allowed.

18. All work is to be of a substantial character, and put up in a thorough workmanlike manner, and to be accurately tested at the time of erection for insulation.

19. When the "electric light" is intended to be used, information must be supplied of the particular system of lighting that is to be adopted; how and where the electricity is to be generated; the number and kind of lamps used; the quantity of electricity to be conveyed through the wires: the conductive capacity of the wires; method of insulation; whether there is to be metallic circuit; and as far as possible full details of the manner in which it is proposed to equip the building.

Messrs. Crompton and Gordon believe that if certain definite and well-understood rules are observed in arranging the installations of the electric light, it is absolutely safe from risk of fire, and that although electricity is now supplied on a small scale only, it will in a very short time be supplied on at least as large a scale as gas or water.

Fire Risks from Electric Lighting.—Mr. Heaphy, C.E., in a letter to the *Times*, adds still further to the rules and regulations recently framed by him for the guidance of the "Phœnix" Fire Office, but these additions are addressed more directly to the occupiers and owners of private dwellings.

Rule 1.—See that no naked wires are used. Try and arrange that they be covered with a material rendered as incombustible as possible. This you can very easily test for yourself.

Rule 2.—See that all wires are kept at least one inch apart from each other (if they are "leads" two inches), and one inch from all metallic substances.

Rule 3.—See that no wire hangs loosely, and that they are in such a position as not to be liable to derangement or injury from external causes. Get them enclosed, if possible, in wood or slate beading having a continuous fillet to keep the wires separate.

Rule 4.—See that none of the fastenings of the wires are composed of metal.

Rule 5.—Have a "cut out" for every room, and if possible for every light. A "cut out" is a short piece of easily fusible metal, such as lead, inserted in the wire conveying the electricity to the light or lights.

Rule 6.—See that your wires—unless they have a waterproof covering—are kept free from wet.

Mr. Heaphy continues:—"This last rule is more important than it seems, for paradoxical as it may appear to those not versed in the subject, water can easily bring about a fire through its property of conducting electricity, several cases of wood being charred having already arisen, and a fire in America has occurred from this cause.

"The above rules apply to incandescent lighting only, as in every case of arc or semi-incandescent installations an inspection will probably be made by the fire office insuring the building.

"In order to prevent any unnecessary alarm in the mind of the public, I may state that all my experience so far has not caused me to alter in any way the opinion contained in my report, viz.:—'That where systematic and proper precautions are taken there is less danger from electric lighting than from gas; but that if carelessly or ignorantly arranged or improperly worked then serious fires may be apprehended.' Unfortunately the demand for competent men to lay the wires is already exceeding the supply.

"It is only fair to state that the care taken to prevent fires by one or two of the electrical companies deserves much praise. I regret having to withhold their names, as I do not wish the accusation brought against me of giving undue prominence to any of them."

Fire Risks from Electric Lighting.—Rules and regulations for the prevention of fire risks arising from electric lighting, recommended by the Council of the Society of Telegraph Engineers and of Electricians in accordance with the report of the committee appointed by them on May 11, 1882, to consider the subject. Members of the committee: Professor W. G. Adams, F.R.S., vice-president; Sir Charles T. Bright; T. Russell Crampton; R. E. Crompton; W. Crookes, F.R.S.; Warren De la Rue, D.C.L., F.R.S.; Professor G. C. Foster, F.R.S., past president; Edward Graves; J. E. H. Gordon; Dr. J. Hopkinson, F.R.S.; Professor D. E. Hughes, F.R.S., vice-president; W. H. Preece, F.R.S., past president; Alexander Siemens; C. E. Spagnoletti, vice-president; James N. Shoolbred; Augustus Stroh; Sir William Thomson, F.R.S., past president; Lieut.-Colonel C. E. Webber, R.E., president.

These rules and regulations are drawn up not only for the guidance and instruction of those who have electric lighting apparatus installed on their premises, but for the reduction to a minimum of those risks of fire which are inherent to every system of artificial illumination.

Digitized by Google

The chief dangers of every new application of electricity arise mainly from ignorance and inexperience on the part of those who supply and fit up the requisite plant.

The difficulties that beset the electrical engineer are chiefly internal and invisible, and they can only be effectually guarded against by "testing" or probing with electric currents. They depend chiefly on leakage, undue resistance in the conductor, and bad joints, which lead to waste of energy and the production of heat. These defects can only be detected by measuring, by means of special apparatus, the currents that are, either ordinarily or for the purpose of testing, passed through the circuit. Bare or exposed conductors should always be within visual inspection, since the accidental falling on to, or the thoughtless placing of other conducting bodies upon, such conductors might lead to "short circuiting" or the sudden generation of heat due to a powerful current of electricity in conductors too small to carry it.

It cannot be too strongly urged that amongst the chief enemies to be guarded against are the presence of moisture and the use of "earth" as part of the circuit. Moisture leads to loss of current and to the destruction of the conductor by electrolytic corrosion, and the injudicious use of "earth" as a part of the circuit tends to magnify every other source of difficulty and danger.

The chief element of safety is the employment of skilled and experienced electricians to supervise the work.

I. The Dynamo Machine.

1. The dynamo machine should be fixed in a dry place.
2. It should not be exposed to dust or flyings.
3. It should be kept perfectly clean and its bearings well oiled.
4. The insulation of its coils and conductors should be perfect.
5. It is better, when practicable, to fix it on an insulating bed.
6. All conductors in the dynamo room should be firmly supported, well insulated, conveniently arranged for inspection, and marked or numbered.

II. The Wires.

7. Every switch or commutator used for turning the current on or off should be constructed so that when it is moved and left to itself it cannot permit of a permanent arc or of heating, and its stand should be made of slate, stoneware, or some other incombustible substance.

8. There should be in connection with the main circuit a safety fuse constructed of easily fusible metal which would be melted if the current attain any undue magnitude, and would thus cause the circuit to be broken.

9. Every part of the circuit should be so determined, that the gauge of wire to be used is properly proportioned to the currents it will have to carry, and changes of circuit, from a larger to a smaller conductor, should be sufficiently protected with suitable safety fuses so that no portion of the conductor should ever be allowing to attain a temperature exceeding 150° F.

N.B.—These fuses are of the very essence of safety. They should always be enclosed in incombustible cases. Even if wires become perceptibly warmed by the ordinary current, it is a proof that they are too small for the work they have to do, and that they ought to be replaced by larger wires.

10. Under ordinary circumstances, complete metallic circuits should be used, and the employment of gas or water pipe as conductors, for the purpose of completing the circuit, should in no case be allowed.

11. Where bare wire out of doors rests on insulating supports, it should be coated with insulating material, such as india-rubber tape or tube, for at least two feet on each side of the support.

12. Bare wires passing over the tops of houses should never be less than seven feet clear of any part of the roof, and they should invariably be high enough, when crossing thoroughfares, to allow fire escapes to pass under them.

13. It is most essential that the joints should be electrically and mechanically perfect. One of the best joints is that whipped around with small wire, and the whole mechanically united by solder.

14. The position of wires when underground should be efficiently indicated, and they should be laid down so as to be easily inspected and repaired.

15. All wires used for indoor purposes should be efficiently insulated.

16. When these wires pass through roofs, floors, walls, or partitions, or where they cross or are liable to touch metallic masses like iron girders or pipes, they should be thoroughly protected from abrasion with each other or with the metallic masses, by suitable additional covering; and where they are liable to abrasion from any cause or to the depredations of rats or mice, they should be efficiently encased in some hard material.

17. Where wires are put out of sight, as beneath flooring, they should be thoroughly protected from mechanical injury, and their position should be indicated.

N.B.—The value of frequently testing the wires cannot be too strongly urged. It is an operation, skill in which is easily acquired and applied. The escape of electricity cannot be detected by the sense of smell, as can gas, but it can be detected by apparatus far more certain and delicate. Leakage not only means waste, but in the presence of moisture it means destruction of the conductor and its insulating covering, by electric action.

Digitized by Google

III. Lamps.

18. Arc lamps should always be guarded by proper lanterns, to prevent danger from falling incandescent pieces of carbon, and from ascending sparks. Their globes should be protected with wire netting.

19. The lanterns, and all parts which are to be handled, should be insulated from the circuit.

IV. Danger to Person.

20. To secure persons from danger inside buildings, it is essential so to arrange the conductors and fittings, that no one can be exposed to the shocks of alternating currents exceeding 60 volts; and that there should never be a difference of potential of more than 200 volts between any two points in the same room.

21. If the difference of potential within any house exceeds 200 volts, whether the source of electricity be external or internal, the house should be provided outside with a "switch," so arranged that the supply of electricity can be at once cut off.

By order of the Council, F. H. Webb, *Secretary*.

The Fire Underwriters' Regulations respecting the Use of the Electric Light in New York.—In a short article dealing with the question of the dangers to be apprehended in using electric currents for the production of light, the Journal of the Franklin Institute gives the following information, which will be of interest to electric lighting companies in this country.

"The New York Board of Fire Underwriters has taken a strong interest in the above question, and through a special committee, appointed for the purpose, they have adopted a set of regulations to govern the introduction and use of electric lights. From the nature of this organisation it was to be expected that they would consider the subject from a strictly business standpoint, as their interest in it is based on purely monetary considerations. An examination of the regulations adopted as a standard by the Board confirms this view. They enter into the most elaborate details respecting the precautions to be taken to guard against danger, including therein the questions of the capacity of conductors, the proper methods of insulation, the protection of the lights, &c. In this respect the regulations established by the New York Board of Fire Underwriters will be found useful in connection with the report of the Committee of the Franklin Institute, published in their journal of December, 1881." The regulations of the underwriters, embracing the latest revisions as adopted at a meeting held January 12th, 1882, are as follows;

Capacity of Conductors.

For Arc Lights.—The conductor must have a weight per running foot at least equal to that of the wire (or parallel group of wires) constituting the main circuit of the magnetic regulator of the electric lamps, or of the armature of the machine employed, whichever of these is the largest.

For Incandescent Lights.—Wherever a connection is made between a larger and a smaller conductor at the entrance to or within a building, some approved automatic device must be introduced in the circuit of the smaller conductor, whereby it shall be interrupted whenever the current passing through it is in excess of its safe carrying capacity. The safe carrying capacity of a wire is that current which it will convey without becoming painfully warm when grasped in the closed hand.

Insulation.

All wires, machines, and lamps to be so mounted and secured as to insure complete and continuous insulation, with the exception of those parts (such as portions of the lamps or machines, for example) where insulation is impossible, and in this case accidental contact with exterior objects must be prevented by appropriate screens or the like.

In no case must "ground circuits" be employed, or any portion of the system be allowed to come into conducting connection with the earth through water or gas pipes, or otherwise.

Exposed wires must be covered with at least two coatings, one of insulating material next the wire, of a thickness and material approved by the Board, and another outside of this, of a material calculated to protect the former from abrasion or other mechanical injury.

Where there is a possible exposure to water, the first or second coating must be impervious to that fluid.

Wherever electricity is carried into a building by conductors from an exterior source, a "cut out" must be provided at a point as near as possible to the entrance to such building.

The outgoing and returning wires for arc lights should enter and leave each building at points at least one foot from each other.

Digitized by Google

The wires passing through the exterior walls of a building should be firmly incased in substantial tubes of non-conducting material, not liable to absorb moisture, and placed in such a manner as to prevent rain-water from entering the building along the wire.

In running along walls and the like wires should be rigidly attached to the same by non-conducting fastenings (the wires themselves being well insulated), and should not be hung from projecting insulators in loose loops.

All wires should be placed at a distance of eight inches for arc lights and two and one-half inches for incandescent lights from each other, and wherever they approach any other wire or conducting body capable of furnishing another circuit or ground connection, they must be rigidly secured and separated from the same by some continuous solid non-conductor, such as dry-wood, of at least one-half inch in thickness.

Wherever wires ar carried through walls, floors, or partitions in buildings, they must be surrounded by a special insulating tube of substantial material

All joints in wires must be made in such a manner as to secure a perfect and durable contact. Continuous wires (without joints) to be used as far as possible.

GLOBES.

Arc lights must be protected by glass globes, inclosed at the bottom to prevent the fall of ignited particles, and where inflammable materials are present below the lamps, a wire netting must be added, to keep the parts of the globe in place, in case of its fracture during use.

All broken and cracked globes to be at once replaced by perfect globes.

In show-windows and other places where inflammable materials are near the lights, spark arresters shall be placed at the top of the globes.

AUTOMATIC SHUNT.

Wherever a current of such high electromotive force is employed, that if concentrated on one lamp of the series it would produce an arc capable of destroying or fusing parts of such lamp, an automatic switch must be introduced in each lamp, by which it will be thrown out of circuit before the arc approaches any such dangerous extent.

Companies furnishing electricity from central stations must enter into an agreement with the New York Board of Fire Underwriters, binding themselves to test their lines for ground connections at least *once* every day (and preferably three times per day), and to report the result of such tests to the Board weekly.

Means by which those in charge of the dynamo-electric machines will be warned of any excessive flow of current, or means whereby the same will be automatically checked, must in all cases be provided.

The importance of Telegraphy is shown in a tableau given in the "*Electrical Review*," of the 28th January, 1882, under the title of "Telegraph lines in the World" and which is so instructive that we do not hesitate to reproduce it in its entirety.

"TELEGRAPH LINES IN THE WORLD.—In a paper contributed to the *Zeitschrift d. Statischen Bureaus*, Herr Carl Brämer gives the following valuable statistics on the Telegraph lines of the world for 1879, in kilomètres :—

	Length of Lines.	Length of Wire.		Length fo Lines.	Length of Wire.
German Empire	66,855	238,426	Greece	3,518	4,515
Austria	34,626	90,999	Bulgaria	2,057	3,021
Hungary	14,502	52,918	Roumania	5,239	8,324
Russia	88,587	204,634	Algeria and Tunis	6,984	10,059
Sweden	11,304	29,026	India-European Line	3,528	9,276
Norway	8,610	15,756	British India	33,040	83,600
Denmark	3,448	9,118	Dutch Indies	5,861	7,413
Great Britain	41,311	183,815	Cochin China	1,634	1,669
Netherlands	3,761	13,655	Japan	6,380	14,260
Belgium	5,410	23,572	Western Union	137,803	375,556
Switzerland	6,552	16,007	Victoria	5,151	9,289
France	64,275	182,518	New Zealand	5,858	15,028
Spain	15,870	40,053			
Italy	25,533	84,101	Total	615,682	1,739,953

A kilomètre being equal to 0·62,137 mile, the total length of miles would be equal to 382, 566, and the total length of wire equal to 1,081,155 miles. It will be noticed that for the United States the Western Union only is given, that of Mexico and the whole of South America is omitted. These official figures are supplemented by Herr Brämer, as follows :—

Digitized by Google

	Length of Lines.	Length of Wire.		Length of Lines.	Length of Wire.
Luxemburg (1877)	310	527	Porto Rico	750	..
Portugal	4,253	9,719	Venezuela	539	..
Montenegro	444	..	Colombia (1876)	2,960	..
Servia (1874)	1,461	2,416	Ecuador (1875)	338	..
Turkey	27,497	52,142	Peru (1875)	978	..
Senegambia	415	415	Bolivia (1875)	762	..
Cape Colony	2,543	3,101	Paraguay	72	..
Orange Free State	441	..	Brazil	6,942	..
Persia	3,426	4,485	Uruguay	1,219	..
Ceylon	1,308	..	Argentine Republic	7,757	15,819
Phillipine Islands	1,200	1,500	Chili	7,162	..
Canada (1877)	17,694	26,142	West Australia	2,496	2,532
United States (1877)	177,000	388,000	South Australia	7,070	9,500
Mexico	11,997	..	Queensland	9,608	12,860
Guatemala	1,867	..	New South Wales	12,099	19,998
Honduras	1,046	..	Tasmania	1,175	1,475
Costa Rica	320	..	New Caledonia	1,040	1,104
Cuba	4,500	..	Sandwich Islands	64	..

His estimate is as follows:—

	Lines.	Wire.		Lines.	Wire.
Europe	407,950	1,213,400	Australasia	44,350	65,500
Africa	18,400	27,400			
Asia	83,900	175,700	Total	798,300	1,972,000
America	243,700	490,000			

In 1879, therefore, the total miles of line were 494,000, and the total miles of wire 1,225,000.

In addition to this are the submarine cables, a list of which to December 31st, 1880, is given below.

Anglo-American	12,319 miles.	Great Western	5,590 miles.
Black Sea	403 ,,	Mediterranean Extension	235 ,,
Brazilian Submarine	4,227 ,,	Mediterranean and Brazilian	230 ,,
Cuba Submarine	1,068 ,,	Plantino-Brazileira	1,219. ,,
Direct Spanish	931 ,,	Submarine	702 ,,
Direct United States	3,438 ,,	West Indian and Panama	4,689 ,,
Eastern	18,888 ,,	Western and Brazilian	2,901 ,,
Eastern and South Africa	4,441 ,,		
Eastern Extension	12,022 ,,	Total	73,562 ,,
German Union	258 ,,		

The number of Electrical Patents taken in England, during the year 1882, is 740. and they are subdivided into the following categories:—

Relating to	Telephones and Microphones		75
,,	Telegraphy		25
,,	,, (Submarine)		2
,,	Electric Lighting by Arc	97	
,,	,, ,, ,, Incandescence	56	
			153
,,	Batteries—Primary (Voltaic or Galvanic)	35	
,,	,, Secondary (Accumulator)	80	
			115
,,	Machines—Magneto, Dynamo, and Electro-Motor		95
,,	Wire—Cable, Appertainances, Insulators, Insulating Substances, Compounds or Materials		57
,,	Distributors, Transmission and Supply of Electrical Energy (Electric Railways, Tramways, Navigation, &c.)		17
,,	Electric Bells, Signals, Fire and Burglar Alarms, &c.		28
,,	Railway Signalling and Telegraphing		16
,,	Controlling, Measuring, Regulating and Registering		49
,,	Carbons		15
,,	Electroliers and Electric Fittings		12
,,	Electro Metallurgy		1
,,	Sundry subjects		68
,,	General ,,		12
			740

Digitized by Google

MESSER & THORPE,

Mechanical and General Draughtsmen,

8, QUALITY COURT, CHANCERY LANE, W.C.

M. & T. being practical Engineers of many years experience, Inventors can rely upon having their designs worked out in a thoroughly efficient and practical manner.

DRAWINGS for ENGLISH, FOREIGN, and COLONIAL Patents prepared in conformity with the Rules of the Patent offices of the Various Countries.

J. A. BERLY'S

DIRECTORY

OF

BRITISH ADVERTISERS.

GARDEN & GAYE,

(Late the ARISTON OIL COMPANY,)

15, KIRBY STREET, HATTON GARDEN, E.C.

MANUFACTURE

OILS specially suitable for Dynamos, Gas Engines, and Fast Running Machinery.

Cylinder Oils, Tallow, Cotton Waste, Specially Prepared Paints and Varnishes, Methylated Spirit, Shellac, and other stores required by Electric Light Co.'s.

Stores promptly despatched to any part of the United Kingdom.

Digitized by Google

WILLIAM RICKARD,





ASHBOURNE ROAD MILLS, BRIDGE ST. MILL,

AND

AGARD STREET MILLS, DERBY.

ESTABLISHED 1853.

Electrical Wire Manufacturer.

COPPER, GERMAN SILVER & PLATINUM SILVER WIRES,

Insulated with Silk and Cotton, in every form and size.

Only the HIGHEST CONDUCTIVITY (97 per cent.) COPPER used.

INDIA RUBBER & GUTTA PERCHA

INSULATED LINE WIRES,

FOR FITTING MINES, HOTELS, MANSIONS, &C., WITH

ELECTRICAL BELLS, TELEGRAPHS & TELEPHONES.

FLEXIBLE CORDS of every description, BRAIDED and PLAIN.

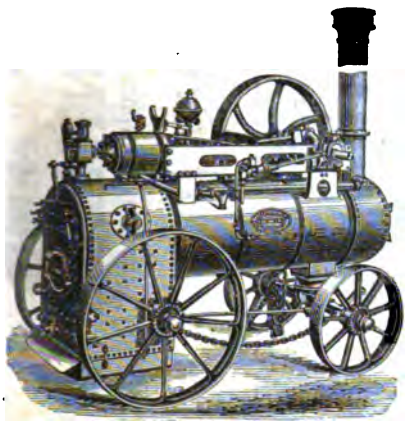
Complete Terminal Cords

WITH WATCH-KEY, AND OTHER ENDS FOR TELEPHONES.

London Warehouse (where stock is kept); 2, Gutter Lane, Cheapside. Agent—EDWIN HOLLOWAY.

Digitized by Google

DAVEY, PAXMAN & CO.



HIGH PRESSURE PORTABLE ENGINE.

Portable Semi-Portable, Semi-fixed and Fixed Engines of all sizes from 4 to 100 H.P., with Single or Double Cylinders or Compound

1882.

INTERNATIONAL
Electric Light Exhibition,
CRYSTAL PALACE.

HIGHEST HONOURS and GOLD MEDAL were awarded to D. P. & Co., for their Improved Steam Engine, which was also specially selected and retained by the Jury of the Exhibition for the purpose of carrying out Scientific Experiments.

When specially ordered, these Engines are fitted with PAXMAN'S Patent Automatic Expansion Gear, which is regulated, directly by the Governors or they are provided with our Improved Variable Expansion Gear.

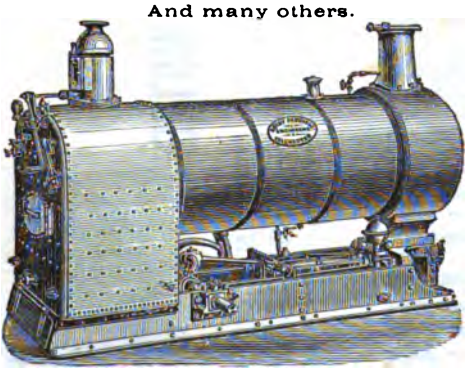
COMPLETE CATALOGUES, PRICE LISTS, ESTIMATES &c., POST FREE ON APPLICATION.

Medals:

London.	Brussels.
Paris.	Sydney.
Philadelphia.	Santiago.
Vienna.	Holland.

And many others.

ELECTRIC LIGHT ENGINES



IMPROVED SEMI-FIXED ENGINES.

STANDARD IRONWORKS,
COLCHESTER, ENGLAND.

London Office: 139, QUEEN VICTORIA STREET.

Digitized by Google

THE GÜLCHER ELECTRIC LIGHT & POWER CO.

LIMITED.

GOLD MEDAL
PARIS EXHIBITION, 1881.

Sole Proprietors of the

The ONLY MEDAL for Highest Excellence, VIENNA, 1882.



GÜLCHER LOW-TENSION ARC LAMP AND DYNAMO,

AND OF

CROOKES'S INCANDESCENT LAMP,

For the United Kingdom, India, and Colonies.



The Special Features of this System are

STEADINESS OF THE LIGHT, ECONOMY AND SAFETY.

Enquire for all Particulars of the Secretary, **C. B. CHARLEWOOD, Esq.**, at the Company's Offices,

121, BISHOPSGATE STREET WITHIN.

Messrs. MILES BROTHERS & Co. 79, Gracechurch Street, London, E.C., Sole Agent for New Zealand.

Digitized by Google

Telegram Address:—DEFRIES, LONDON. Telephone No. (London) 4133.

J. DEFRIES & SONS,

OFFICES AND SHOW ROOMS:

147, HOUNDSDITCH, LONDON, E.C.

WORKS:

LONDON AND BIRMINGHAM.

ELECTRIC LIGHT DEPARTMENT.

1.—Installations of Arc and Incandescent Lamps made on a **new and economical system,** in which **all naked wires can be handled without inconvenience or danger.**

2.—DEFRIES'S **Patent Safety Switch for Incandescent Lamps** has the appearance and action of a gas tap, allows no escape of sparks under any circumstances, and avoids the possibility of danger from fire through formation of a permanent Arc within the Switch. The Lamps on a circuit **can be turned on and off singly** in the same way as gas.

3.—Designs (Registered) in **Crystal** and **Brass,** at all prices, of **Electroliers** and all **Fittings for Incandescent and Arc Lighting.** J. DEFRIES & SONS manufactured the 96-Light Cut Crystal Candelabrum for the Centre Nave of the Crystal Palace, at the Exhibition of 1881-2.

4.—**Shades, Reflectors, Globes,** &c., of newest designs, for Arc & Incandescent Lamps.

5.—**Alabaster, Opal, Flint** (obscured and plain), &c. Globes for Arc Lamps.

6.—**Glass and Porous Cells** for Batteries.

Exhibit at Crystal Palace, 1882-3, in Mediæval Court, French Mediæval Vestibule, adjacent Corridors, and Centre Nave.

Estimates, Designs, &c., on application at 147, HOUNDSDITCH, LONDON, E.C.

RANSOME, JOSSELYN & WOODS,

Engineers, Iron and Brass Founders,

BATTERSEA FOUNDRY, LONDON, S.W.

MACHINE MOULDED CASTINGS.

Having laid down a complete Plant of the most improved Moulding Machinery, R. J. & W. are enabled to supply Castings, where large quantities are required, at a very low figure.

SPECIAL FACILITIES FOR, AND ATTENTION PAID TO LARGE CASTINGS UP TO 40 TONS, FOR ENGINEERS.

Sole Manufacturers of the Patent Diagonal Rocking Fire Bar,

COMBINING DURABILITY AND ECONOMY.

ESTIMATES GIVEN ON APPLICATION.

Digitized by Google

METALLIC BASE ELECTRIC BELLS,

SCIENTIFIC EXPERIMENTAL APPARATUS.

Dale's Telephone Transmitter.

The British Indicator.

PATENT GRANULE BATTERY.

ELECTRIC LIGHT APPARATUS.

H. & E. J. DALE,

MANUFACTURING ELECTRICIANS.

LARGE STOCK KEPT READY FOR IMMEDIATE SHIPMENT.

PRINCIPAL SHOW ROOMS,

26, LUDGATE HILL, E.C.

ALSO

BRITISH ELECTRIC WORKS:—

3a & 4, LITTLE BRITAIN, E.C.

CABINET AND DYNAMO FACTORY:

9, KIRBY STREET, E.C.

Full illustrated Catalogue, 120 pages, Post-free 6, Stamps.

By Royal  Letters Patent.

W. OLDFIELD & WALTON,

MANUFACTURERS OF

THE OLDFIELD PATENT LEATHER LINK BELTING,

FOR ALL KINDS OF MACHINERY PURPOSES,

GLASGOW.

Its merits are great *Strength* and *Durability*. Possessing the great advantage over all other belting in having no splices, rivets, or any other projection on the surface, (the place where ordinary belting gives way) leaving the whole breadth entirely free to grip the surface of the pulley. The irregular thickness of ordinary belting prevents it from having an even bearing. In the Patent Belt this is entirely overcome.

The durability is greatly increased, as the bearing is on the edge of the leather. It can be reversed, as it works equally well on either side. Possessing the most perfect flexibility, it can be worked either open, half-cross, cross, over and under a number of pulleys, shifting pulleys, and cone driving.

Size of pulley immaterial; it will run equally well over a small or large one. Altering the length when required is very simple.

Price Lists and any other information can be had from

Mr. ROBERT BARR, Agent,

EAST INDIA DOCK, LONDON, E.

Digitized by Google

ARMSTRONG, STEVENS & CO.,

WHITTALL STREET,

BIRMINGHAM.

MANUFACTURERS OF

INCANDESCENT & ARC LAMPS,

FITTINGS, SWITCHES, &C.

NOVELTIES & IMPROVEMENTS CARRIED OUT.

ELECTRIC BELL DOMES.

SCREWS, BOLTS and NUTS of all Descriptions,

STEVENS' SPECIAL TELEGRAPH AND TELEPHONE WIRE.

COPPER TELEGRAPH WIRE.

CHARLES TAYLOR, EDMUND STREET, BIRMINGHAM.



MAKER OF HOLLOW SPINDLE

Hand Lathes, Self-Acting Slide Lathes,

SCREW CUTTING LATHES,

As supplied to several of the leading Electric Light Companies in England and on the Continent; also

Manufacturer of all kinds of Self-centring and Independent Jaw Chucks, Milling Machines, Machine Vices, Shafting, Pulleys, &c.

LATHES FOR ALL KINDS OF BRASS WORK.

SPECIALITY:
LATHES FOR ELECTRIC LIGHT APPARATUS.

Lathe and Machine Tool Works,
EDMUND STREET,
BIRMINGHAM.

Digitized by Google

ELECTRIC CARBON MANUFACTURING COMPANY.

WORKS–

ATLAS WORKS, WEBBER STREET, LAMBETH, S.E.

OFFICES–

Mansion House Chambers, Queen Victoria Street, E.C.

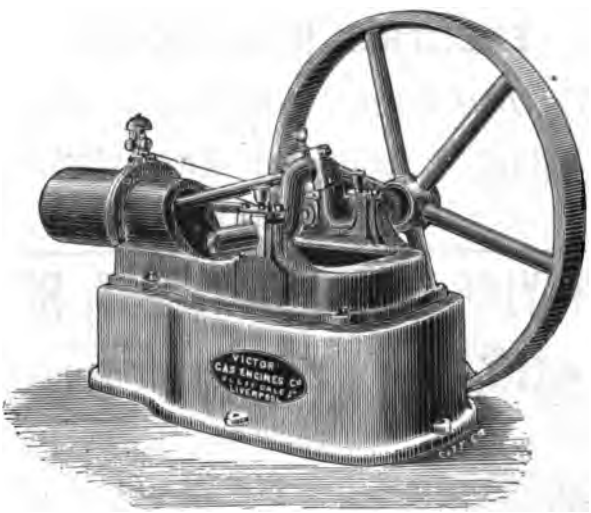
Carbons suitable for every kind of ELECTRIC LIGHTING and other Electrical Appliances.

VICTOR Silent Reversible GAS ENGINES.

SIZES:—1 to 100 H.P.

Special Victor for Electric Lighting.

Power imparted every stroke, only one Cylinder and no Complications.



Cheap, Simple, Compact,
NO TROUBLE,
Most Economical
IN
GAS & OIL
WHERE
COAL GAS
is not Available.
Workable with other
Gas Apparatus.

Prices:—1 N.H.P. £58; 3 H.P. £120; 8 H.P. £210; 16 H.P. £300. Special Victor 10 per cent. on these prices. (Power indicated about double). Particulars given of intermediate and larger sizes.
Small Power 1 to 4 man, ask for the "Little Victor" Gas Engines. *Foreign Patents for sale.* Agency wanted for good Electric Light. Enamelled name Tablets, &c. for Electrical Engineers, &c., on Copper or Iron.

Victor Gas Engines Company, 86 & 88, Dale Street, Liverpool.

PRIZE MEDAL,



PARIS ELECTRICAL EXHIBITION, 1881.

J. STIFF & SONS,

LAMBETH, LONDON,

MANUFACTURERS OF

RED OR WHITE POROUS CELLS, CYLINDERS AND PLATES,

BATTERY JARS (BROWN or WHITE),

TELEGRAPH INSULATORS (BROWN OR WHITE),

J. SLATER LEWIS'S PATENT SELF-ACTING INSULATORS.

Chemical Apparatus, Plumbago Crucibles, &c.

CONTRACTORS TO THE POST OFFICE AND OTHER DEPARTMENTS.

Digitized by Google

ELECTROLIERS

FOR INCANDESCENT LIGHTING.

FARADAY & SON having made some hundreds of Fittings for the Paris and Sydenham Exhibitions, and for many public and private buildings, have now a very comprehensive stock on hand. A priced Catalogue, with over 30 of their most approved designs, will be forwarded on application.

THESE FITTINGS ARE OF DISTINCTIVE CHARACTER AND THOROUGH FINISH.

PATENT COUPLINGS FOR BRANCH WIRES, SWITCHES, &c.,

FARADAY & SON, 3, BERNER'S STREET, W.

JOHN BRYDEN & SONS,

DOMESTIC ELECTRICIANS,

2, BULSTRODE STREET, CAVENDISH SQUARE,

(CORNER OF WELBECK STREET,)

LONDON, W.

AND AT

EDINBURGH: 16, Frederick Street, PERTH: 7, Princes Street,
GLASGOW: 24, Renfield Street, DUNDEE: Commercial Street.
FACTORY:—SILVERMILLS, EDINBURGH.

ESTABLISHED 1809.

Every Description of Electric Bell Work, suited for Dwelling Houses, Hotels, Public Offices, &c., made to order and fixed upon the most approved methods.

Careful Workmen sent to all parts of the country.

ESTIMATES GIVEN ON APPLICATION.

JOSEPH BOURNE & SON,

MANUFACTURERS OF THE WELL-KNOWN

STONEWARE TELEGRAPHIC INSULATORS & BATTERY JARS.

For Thirty years these manufactures have been celebrated for a high degree of vitrefaction combined with great toughness and strength.

Brown Stoneware. White Stoneware. Brown Porcelain. Porous Cells.

Economy, Strength, and Durability combined. *Prize Medal, Paris Electrical Exhibition.*

Makers of Mr. Slater Lewis' Patent Self-Binding Insulator.

Works: DENBY POTTERY, NEAR DERBY.

London Office: 6, ST. PANCRAS STATION, EUSTON ROAD, N.W.

Digitized by Google

SWAN UNITED ELECTRIC LIGHT COMPANY, LIMITED.



ESTIMATES and every information given for LIGHTING by the SWAN INCANDESCENT ELECTRIC LAMPS, Towns, Streets, Warehouses, Mills, and Public Buildings, Theatres, Houses, &c., &c.

More than twenty ships have been fitted with the Swan Incandescent Lamp, comprising Vessels in the Royal Navy, the Inman, Cunard, White Star, Union of New Zealand, British India and Orient Lines, etc.; and over 100 important installations are in operation in various works, factories, public buildings, and houses. The Lamps may be also seen at the Savoy Theatre (fitted by Messrs. Siemens Bros. & Co., Limited, which is entirely lighted by them), at Messrs. Edmundson & Co., 19, Great George Street, Westminster; Messrs. Laing, White & Co., Holborn Viaduct; & Messrs. Crossley Brothers, Limited; Poultry, London; the Theatre des Varietes, Paris, &c., &c.

For particulars apply to the Secretary.

Swan United Electric Light Compy.,
LIMITED,
9, ST. MILDRED'S COURT,
LONDON, E.C.

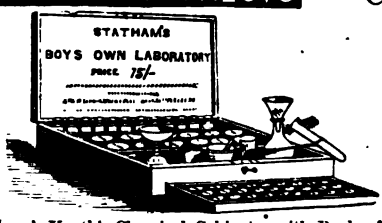
Digitized by Google

STATHAM'S CHEMICAL AMUSEMENT CHESTS

MEDALS LONDON & PARIS.

"For Quality and Cheapness."

STATHAM'S SCIENTIFIC AMUSEMENTS



Statham's Youth's Chemical Cabinets, with Book of 145 Experiments. 6s., 8s., 11s.
Boy's Own Laboratory, 15s.; with Book, 15s. 6d.
"First Steps in Chemistry," 6d., by post 7d.
Statham's Student's Chemical Cabinets. No. 1, 21s.; No. 31s. 6d.; No. 3, 42s.; No. 4, 63s.: No. 5, 84s.

"Elementary Chemistry," 2s. (by post 2s. 3d.)
Statham's Shilling Box of Chemical Magic for performing 50 amusing Experiments (by post 1s. 2d.)
Statham's Sets of Electrical Apparatus. No. 1, 30s.; No. 2, 42s.; No. 3, 63s.; No. 4, 105s.; No. 5, 147s.; No. 6, 210s.
Statham's Sets of Electrotype Apparatus. No. 1, 5s. 6d.; No. 2, 7s. 6d.; No. 3, 10s. 6d.; No. 4, 21s.
Statham's Microscope's, 3s. 6d., 5s., 7s. 6d., 10s. 6d., 12s. 6d., 21s., 31s. 6d., 42s., 63s., 105s., &c.
Statham's Geological Cabinets, 25s., 42s., 63s., 105s., &c.
Statham's Magic Lanterns, with Box of 12 Slides (36 to 60 pictures), 7s. 6d., 10s. 6d., 21s., 30s., 42s., &c.
Improved Printing Press, with Types, Ink, &c., 6s. 6d., 8s., 12s., 16s., 24s., 30s., &c.
Box Conjuring Tricks, 7s. 6d., 15s., 21s., &c.
Send 3 Stamps for Illustrated Catalogue of Scientific Amusements, Educational Toys, Working Models, Games, &c., &c.

W. E. STATHAM, 111 (2), STRAND, LONDON.

TELEGRAPH CABLE MAKING MACHINERY

Suitable for every description of Cables (Land and Submarine).

WIRE STRANDING MACHINES

For making Telegraph Strand with any number of Wires.

CORE SERVING MACHINES of all Sizes.

TAPING MACHINES, Single and Double.

BRAIDING MACHINES.

WIRE COVERING MACHINES of every description for covering Wire with India-Rubber, Gutta-Percha, Hemp, Flax, Cotton, Silk, &c.

ESTIMATES FURNISHED ON APPLICATION.

For Plans of Works a Fee is charged proportionate to the labour involved.

THOMAS BARRACLOUGH & Co., Limited,

Offices:—8, King Street,

Works:—Whitley Street, Rochdale Road, Manchester.

SOLE AGENTS FOR SCOTLAND.

THE NEW MATERIAL

For Engineers (Sanitary and Hydraulic), Electricians, Axle Makers, Brassfounders, Pump Makers, Railway Companies, Carriage and Wagon Builders, &c., &c. Substitute for Leather, Rubber and Percha.

It is unequalled for Washers of all kinds, Hot and Cold Water Packings, and Plumbers' uses generally, Insulators, &c.

THE PATENT VULCANISED FIBRE

Is supplied in Sheets from 1-32nd to 1in. in thickness, and in Two qualities—Flexible, 2s. per lb.; Hard, 2s. 3d. per lb.

LINEN BELTING

Highly recommended for electrical purposes for steadiness in working. Is much cheaper and more durable than Cotton, and not affected by damp. Will not slip on the Pulleys, and can be made any length without joins.

Price List on Application.

BINNEY & SON,

Catherine Street, City Road, London, E.C.
50, West Howard Street, Glasgow.
63, Broad Street, Birmingham.
22, Wellington Street, Leeds.

Digitized by Google

GEO. HOUGHTON & SON,

89, HIGH HOLBORN, W.C.

MANUFACTURERS OF

All Kinds of GLASS GLOBES, &c.,

FOR

ELECTRIC LIGHTING.

CHEAP POWER FOR ELECTRIC LIGHTING.

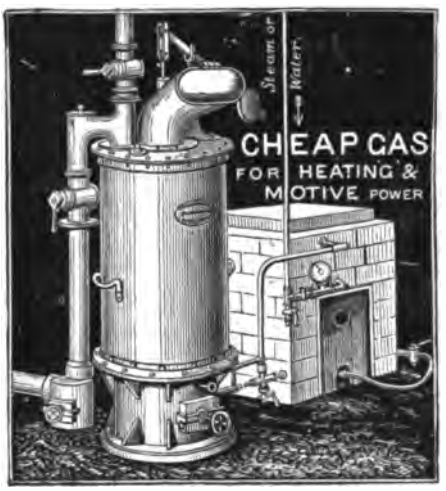
With a small Otto Gas Engine, worked with Dowson Gas, one Indicated Horse Power is obtained with a consumption of 1·5 lbs. Coal.

With larger Engines the coal consumption is still less.

A Saving of Fifty per Cent. with the

DOWSON GAS PRODUCER

compared with Coal Gas at 3/ per 1000 cubic feet.



GOLD MEDAL.
Smoke Abatement Exhibition of London and Manchester, 1882.

SILVER MEDAL.
Bradford Industrial Exhibition, 1882.

BRONZE MEDAL.
Paris Electrical Exhibition, 1880.

Special Award by Dr. Siemens of Fifty Guineas.—Smoke Abatement Exhibition, 1882.

Gas Engines were at work with the Dowson Gas at each of the above Exhibitions.

This Gas is suitable for Heating purposes of all kinds, in Factories, Asylums, Unions, Public Institutions, &c.

THE DOWSON ECONOMIC GAS COMPANY, LIMITED,
3, GREAT QUEEN STREET, WESTMINSTER, LONDON, S.W.

F. A. STEVENS,

WHOLESALE MANUFACTURER OF

ELECTRIC BELLS, INDICATORS, CONSTANT BATTERIES, SWITCHES, INDUCTION COILS,
TERMINALS, CARBONS, WIRES, &c.

ILLUSTRATED LIST POST FREE.

WEST SMITHFIELD, LONDON, E.C.

Digitized by Google

ELECTRICAL POWER STORAGE COMPANY, Limited.

CAPITAL, £800,000.

Directors:

Sir DANIEL COOPER, Bart., Chairman.
J. S. SELLON, Esq., Vice-Chairman.
W. M. BULLIVANT, Esq.
JOHN IRVING COURTENAY, Esq.
CHARLES DORMAN, Esq.
FREDERICK GREEN, Esq.
WILLIAM LADD, Esq.
Colonel F. G. STEUART.
ERNEST VOLCKMAR, Esq.

HEAD OFFICE:—

4, Great Winchester Street Buildings, E.C.

WORKS:—

84, Westferry Road, Millwall, E.

The above Company possesses the Sellon-Volckmar and Faure Patents for Secondary Batteries, and is prepared to receive applications for Licenses or Concessions for Lighting and for Domestic Motive Power for defined Districts, Counties or Towns in the United Kingdom, and for the Patent Rights for the Colonies and for Foreign Countries.

Digitized by Google

NORTH EASTERN ELECTRIC WORKS.

HARRISON, COX-WALKER & CO.,

MANUFACTURING ELECTRICIANS,

TELEGRAPH, TELEPHONE AND PNEUMATIC ENGINEERS,

15, Blackwellgate, DARLINGTON, England.

Factory:—2½, HIGH ROW.

Agents for Vyle's Patent easily-tested Lightning Conductors. Manufacturers of all kinds of Telephonic Apparatus and Call Bells, Mining Signal Bells, Watchman's Tell-tales, and General Electric Work.

SEALING WAX FOR ELECTRICAL MANUFACTURES.

10 PRIZE MEDALS.



PRIZE WAX FOR HOT CLIMATES.

"Bee" Trade Mark impressed on end of each Stick. Sold by all Stationers.

WHOLESALE ONLY OF **GEORGE WATERSTON & SONS,**

Sole Manufacturers. (Established 1752).

London: 9, ROSE STREET, NEWGATE STREET, E.C.

And at EDINBURGH.

UNION POTTERIES, VAUXHALL, LAMBETH.

ESTABLISHED 1737.

CHARLES BASTIN,

WHITE & BROWN STONE WARE POTTER

TO THE TRADE.

MAKER OF ROUND & SQUARE BATTERY CELLS.

ALL KINDS OF CHEMICAL APPARATUS.

Digitized by Google

55 & 56, HIGH HOLBORN,

D. HULETT & CO.,

Gas Engineers, and Manufacturers of all kinds of Gas and Electric Fittings, Sun Burners, Meters, &c.

D. H. & Co. beg to inform Engineers and Managers of Electric Light Companies and Others, that they are prepared to furnish Designs and Estimates upon application for all kinds of Chandeliers, Lamps, and other Fittings adapted for the Electric Light as supplied by them to the Paris Electrical Exhibition, and various Electric Companies.

MANUFACTURERS OF

GASALIERS, LAMPS,

AND OTHER FITTINGS,

PATENTEES OF THE

MERCURIAL GAS REGULATOR.

Wrought Iron

PIPE & FITTINGS.



Chandeliers and Fittings adapted to the Electric Light.

BRASS, LEAD, AND COMPOSITION TUBE.

REFLECTING LAMPS FOR

LARGE OPEN SPACES.

D. H. & Co.'s Patent Street and other Lamps, requiring no Putty or other material for Glazing.

LAMP COLUMNS & LAMPS

OF EVERY DESCRIPTION.

GAS COOKING AND HEATING STOVES.

A Large and Choice Assortment of Chandeliers and Fittings upon Show.

Sole Makers of the BERLY & HULETT PATENT SLIDING CONTACT SUSPENSION.

APPLICABLE TO EVERY SYSTEM OF ELECTRIC LIGHTING.

D. HULETT'S Patent Mercurial Self-Acting Gas Regulator effects a saving in consumption of from 10 to 25 per cent., causing a more perfect combustion, freedom from noise in the Gas Burner, and giving off less smoke and heat. Can be seen in operation at any time at 55, High Holborn.

D, HULETT & CO., 55 & 56, HIGH HOLBORN.

Digitized by Google



THE DRAGON VANE, BOW CHURCH, CHEAPSIDE, LONDON.

THE SOLID COPPER TAPE LIGHTNING CONDUCTORS,

AS SUPPLIED BY US TO THE PRINCE OF WALES, THE CAPE COPPER COMPANY, &c., &c., &c.

REPORT OF THE LIGHTNING ROD CONFERENCE, 1882,

With a Specification for providing and fitting Lightning Conductors.

A MODEL ARRANGEMENT,

Approved by the President of the Meteorological Society. Free by Post.

Telephones for use Abroad in Mines and on Other Works.

	£	s.	d.
Two Micro-Transmitters, 4 Bell Telephones, and 2 Four cell Batteries .	**13**	**0**	**0**

(As in England the United Companies claim a monopoly of all Telephones and Transmitters, these quotations are only given for use abroad, and for delivery from our Paris House.

Stores complete for a Telephone Line Two Miles in Length	**12**	**10**	**0**
,, ,, ,, Ten ,, ,, ...	**60**	**10**	**0**

ELECTRIC LIGHTING.

Estimates given for Installations or Machinery complete, including any of the best-known and most reliable systems of ARC, INCANDESCENT, and COMBINATION LAMPS.

R. C. CUTTING & CO.,

Electrical Engineers,

WARDROBE CHAMBERS, QUEEN VICTORIA STREET,

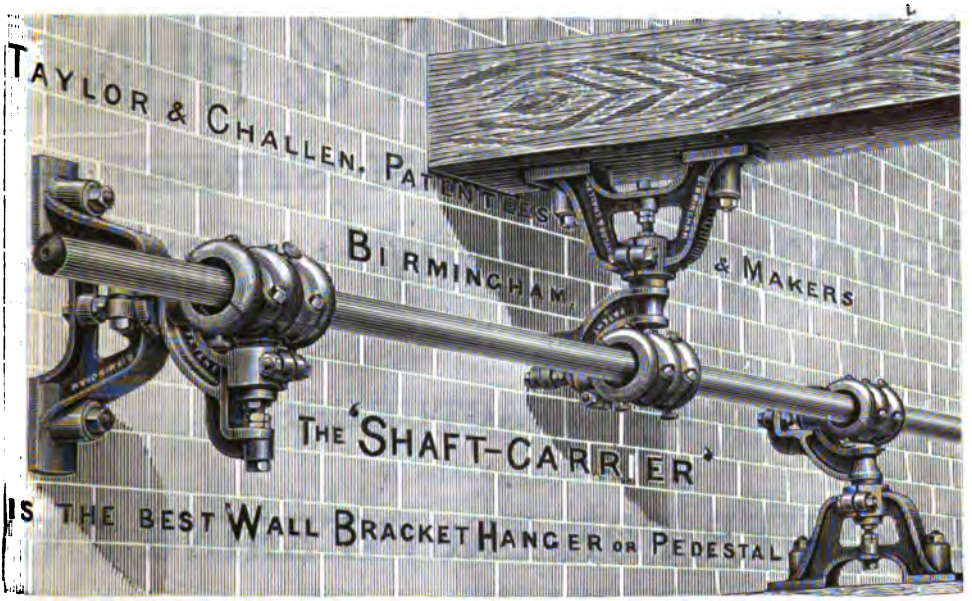
LONDON, E.C.

Digitized by Google

THE SHAFT-CARRIER

IS DEVISED TO CARRY ROTATING SHAFTS.

First offered in November, 1881. It has already been adopted by many eminent Firms, including Electric Light Engineers, and Companies. Numerous Testimonials, repeated orders, and an increasing sale, are proofs of its superiority.



It can be fixed in any position (see cut), is self-adjusting; self-lubricating; position of bearing variable —both vertically and horizontally; easily fixed and maintained true; causes least possible friction; wear—almost *nil;* is produced at a cheap rate, and can usually be supplied from stock.

SHAFTING

Of Wrought Iron, turned true and straight to WHITWORTH Gauges; a quantity always in stock; also

COUPLINGS, COLLARS AND PLUMMER BLOCKS

PULLEYS AND DRUMS



Of any dimensions cast whole or in halves, turned, bored and balanced, unsurpassed in efficiency.

TAYLOR & CHALLEN,

BIRMINGHAM,

Engineers, Machinists, Founders and Smiths.

Digitized by Google

LEATHER BELTING.

NOBES, HOMAN & HUNT,

75, ROCKINGHAM STREET,

NEWINGTON CAUSEWAY, LONDON, S.E.

MANUFACTURERS

OF ALL KINDS OF

LEATHER FOR ENGINEERING AND MECHANICAL PURPOSES.

Leather Belting.
Leather Hose.
Pump Leather.
Hydraulic Leather.
Strap and Pipe Butts.
Harness Backs, etc. etc.

SPECIAL EXTRA STRETCHED and EVEN RUNNING BELTING, suitable for ELECTRICAL MACHINES, as supplied for JABLOCHKOFF, BRUSH, JAMIN, MAXIM, and other well-known systems.

Digitized by Google

DAVIS & TIMMINS,

METAL SCREW MANUFACTURERS,

BOWLING GREEN LANE, FARRINGDON ROAD,

LONDON, E.C.

SOLE AGENTS FOR

J. O. MOUCHEL,

10, RUE COMMINES, PARIS,

MANUFACTURER OF

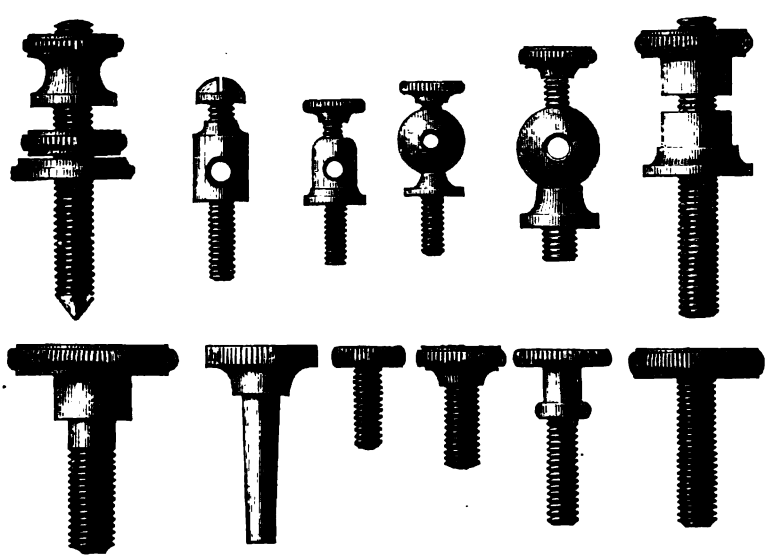
COPPER WIRE OF HIGH CONDUCTIVITY

FOR ELECTRICAL PURPOSES.

HIGHEST AWARD AT THE PARIS INTERNATIONAL ELECTRICAL EXHIBITION, 1881.

CONTRACTORS to several ELECTRIC LIGHTING COMPANIES.

INSULATORS OF ALL KINDS IN EBONITE AND VULCANIZED FIBRE.



TERMINALS, BINDERS AND CLAMPS KEPT IN STOCK.

ESTIMATES GIVEN ON APPLICATION.

Digitized by Google

ASBESTOS! ASBESTOS!!

THE UNITED ASBESTOS COMPANY, LIMITED,

161, QUEEN VICTORIA STREET,

LONDON, E.C.

ARE NOW PREPARED TO SUPPLY THE FOLLOWING FOR

ELECTRIC LIGHTING and Other Purposes

ASBESTOS COVERED WIRES—Fire-Proof; Water-Proof; excellent Insulation; Pliable; Cheap.

ASBESTOS TUBING—For conducting wires underground or through walls, doing away with the necessity for a second covering of insulating material on the wires.

ASBESTITE—This Material, &c., is a combination of asbestos and other materials possessing high insulating properties, which combined, make a material eminently adapted to take the place of ebonite or glass for insulation purposes. It can be worked or moulded as easily as ebonite which in appearance it resembles, and moreover, being acid proof, it is highly suitable for battery or accumulator cells.

It is also highly adapted for use as comulators for Dynamo-machines, plates for electrical apparatus insulators, telephone-cases, transmitter boxes, mouthpieces, bell-pushes, switch-boards, key-boards, galvanometer-frames and bases, and all kinds of apparatus where high insulation is a prime object.

With regard to accumulator cells its stands pre-eminent, having a high electrical resistance and at the same time being perfectly homogenous and acid proof.

ASBESTOS GLOVES—Lined with India-Rubber.

ASBESTOS VARNISH AND PAINT—Excellent for coating parts of Dynamo-machines which are liable to become hot, also for the coils and magnets. This paint will not blister under the most intense heat and has been referred to in the highest terms by the Profession and the Press.

ASBESTOS PAPER—Very fine for Electric work.

ASBESTOS MILLBOARD—For flooring round Dynamo-machines, &c.

ASBESTOS PATENT PACKING—For the glands of Steam Engines.

ASBESTOS CLOTH, TAPE, &c., &c.

PRICES AND FULL PARTICULARS ON APPLICATION TO

THE UNITED ASBESTOS COMPANY, LIMITED,

161, *QUEEN VICTORIA STREET*,

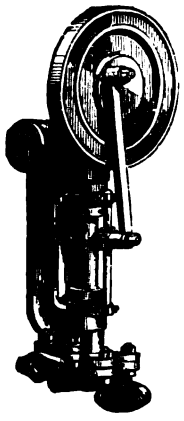
LONDON, E.C.

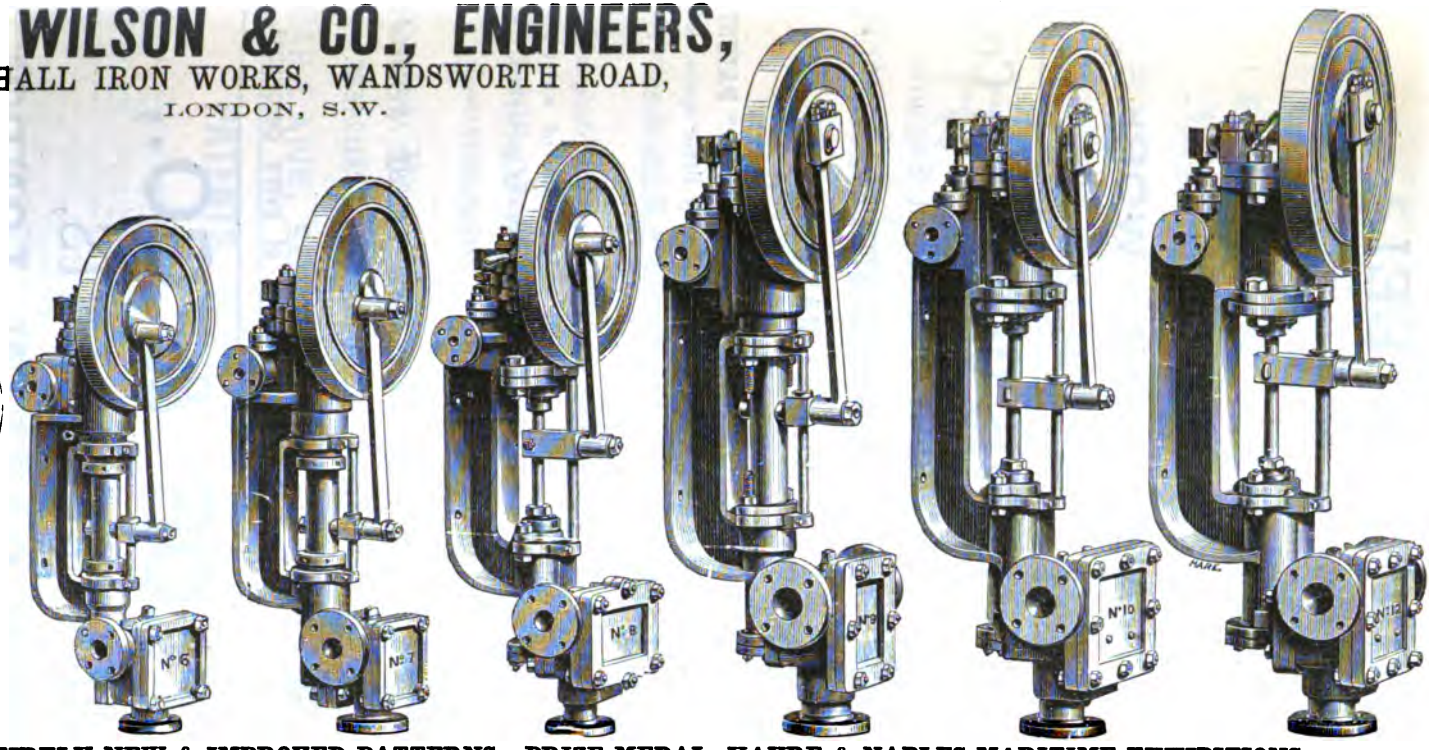
Digitized by Google

ALEX. WILSON & CO., ENGINEERS,

VAUXHALL IRON WORKS, WANDSWORTH ROAD,

LONDON, S.W.





ENTIRELY NEW & IMPROVED PATTERNS. PRIZE MEDAL, HAVRE & NAPLES MARITIME EXHIBITIONS.

The above Woodcuts represent a group of the **"VAUXHALL" DONKEY PUMPS**, showing the variation in size from Nos. 5 to 12. Special attention is called to these Pumps as being the best Boiler Feeders ever brought before the users of Steam Power; and as a proof of this we need only refer to the fact that 8,000 of these Pumps have been sold, principally to Engineers, since their introduction about fourteen years ago. They are very largely used by Electrical Engineers as they are a necessity for Quick Running Engines. Three hundred are always in hand, from which orders can be promptly executed.

Manufacturers of SPECIAL QUICK RUNNING ENGINES and COMPOUND CONDENSING ENGINES for Electric Light purposes. All fitted with Payton and Wilson's Circular, Balanced, and Double-Ported Slide Valves.

Also SHAFTING, PULLEYS, &c. Boilers of all Types.

Manufacturers of the EXCELSIOR DIRECT ACTING STEAM PUMPS for feeding Boilers and other purposes.

ILLUSTRATED PRICE LISTS ON APPLICATION.

Digitized by Google

MAGNET STEEL,

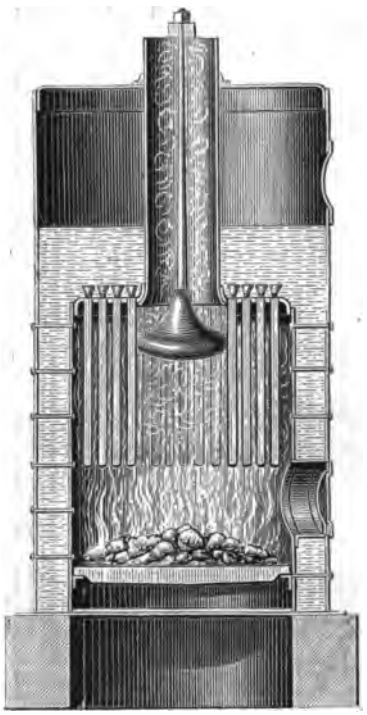
Specially adapted for the present requirements of Electricians, and acknowledged to be unsurpassed by any other,

MANUFACTURED BY

JONAS & COLVER,

CONTINENTAL STEEL WORKS,

SHEFFIELD.



LEWIS OLRICK & Co.,

Consulting & Mechanical Engineers,

27, LEADENHALL STREET, LONDON.

Works: MANCHESTER.

SOLE MAKERS of the "FIELD" PATENT BOILERS, which occupy but very little space, and give an evaporative efficiency of 11 lbs. of water per lb. of coal.

COMPOUND ENGINES, specially designed for driving Dynamos, using only 20 lbs. of water per Indicated HP per hour, automatically governed.

Absolute steadiness of driving guaranteed.

Sole Makers of BLAKE'S LATEST IMPROVED PATENT SECTIONAL STONE CRUSHERS.

Taps, Valves & Fittings of every description.

TAYLOR & CO.,

MICA MERCHANTS,

90, HATTON GARDEN, LONDON.

Mica Supplied in any form or Thickness for Insulating Purposes, &c.

Digitized by Google

F. M. ROGERS,

21, FINSBURY PAVEMENT, LONDON, E.C.

Consulting Engineer and Valuer (By License.)

ELECTRICIAN AND PATENT AGENT.

ROGERS' Patent Railway Station Indicator, Patent Needle Sounder, and Carbon Relay Contact, Patent Simplex Arc Lamp, Buxton and Ross's Patent Valve for preventing the bursting of Water Pipes from frost.

Quotations for manufacture and supply of every class of Electrical Goods and Instruments employed in Testing Railway, Mining, Electric Lighting, Telegraphic Work, and Scientific research.

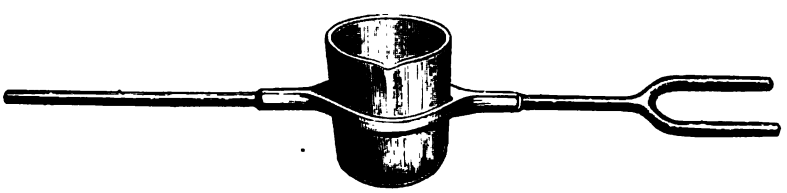
Patent Dynamo Machine, Arc Lamp and Leads ... ... from £45.

Special attention given to preparation of Specifications, and the practical working out of ELECTRICAL INVENTIONS.

R. F. DALE & Co.,

General Brass Founders TO THE *Trade.*

ESTABLISHED AT SHOE LANE, FLEET STREET, IN 1740.



CASTINGS OF ANY SIZE IN BRASS, COPPER, GUN METAL,

AND

Special Bronze Alloys for Electrician's Work.

BEAR LANE, SOUTHWARK STREET, LONDON, S.E.

PATENTS, TRADE-MARKS AND DESIGNS.

MESSRS. DAY, DAVIES & HUNT transact all business connected with the obtainment of Provisional Protection, British, Colonial, and Foreign Patents, and the Registration of Designs and Trade Marks, at most moderate charges. Provisional and Complete, or Final Specifications, drawn or revised. Finished Drawings made from Sketches or from Machinery by competent draughtsmen. Oppositions to Patents and Disclaimers conducted or defended. Disclaimers and Memoranda of Alterations prepared, passed, and filed. The Prolongation or Confirmation of Patents solicited. The Provisional or Complete Registration of Useful or Ornamental Designs effected; and also the Registration of Trade Marks, both at home and in the Colonies, and in all Foreign Countries. Information and ADVICE on any points connected with Patents, Designs, or Trade Marks SEARCHES made as to existing or expired Patents, &c., and the Novelty of Inventions, Designs, and Trade Marks ascertained and advised on. Questions of Infringement investigated and OPINIONS written. CASES prepared for Counsel, and opinions obtained. Patents taken up at any stage, and completed at moderate charges. Agreements, Licences, Deeds of Assignment, or Transfer, and all Legal Documents connected with Patents, are prepared by a Solicitor, who has had many years' experience in the Law and Practice relating to Letters Patent for Inventions, and in legal proceedings relating to infringements of Patents, &c. Messrs. DAY, DAVIES & HUNT make no charge for preliminary information as to proceedings, expenses, &c.; and all letters of general inquiry, enclosing a stamped and addressed envelope, will be promptly answered *gratis*.

Messrs. DAY, DAVIES & HUNT'S Principal Office is at 321, HIGH HOLBORN, LONDON, W.C., and is conducted by Mr. C. A. DAY, Consulting Patent Agent. The hours of business are from 10 to 5; Saturday, 10 to 2. The Office will not be open on Bank or General Holidays, unless to suit the convenience of Clients. Attendance in any part of the Country. Agents in all the Colonies, and Foreign Countries.

Digitized by Google

RICHARD DUDGEON,

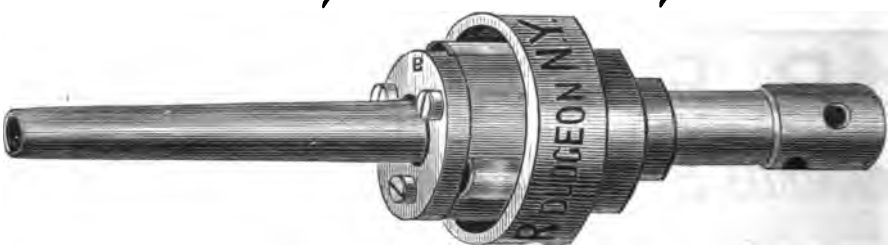
114, FENCHURCH STREET, LONDON, E.C.,

AND

24, COLUMBIA STREET, NEW YORK.

INVENTOR, PATENTEE, & SOLE MAKER OF THE

HYDRAULIC JACK, HYDRAULIC PUNCH, ROLLER TUBE EXPANDERS, STEAM HAMMERS, &c.



THE TUBE EXPANDER.



Frequent complaints having been made of the inferiority of the Tools supplied lately under cover of LISTS and ADVERTISEMENTS headed "DUDGEON'S ROLLER TUBE EXPANDERS" R. DUDGEON begs to make known that having now retired to America, he cannot guarantee any Expanders unless made by himself at his New York Factory, all of which (*and those only*) bear the stamp of the American Patent (still in force), as under:—



R. DUDGEON, N. Y.

PATD. FEB. 5TH. 1867.

On the Guide Ring of each Tool.

WITHOUT WHICH NONE ARE GENUINE.

These can be always obtained at R. Dudgeon's English Depôt, 114, Fenchurch Street. If more convenient to get them through Merchants care should be taken to specify "*Dudgeon's own make*" *on the Order*, but as R. Dudgeon observes with regret that *imitations* bearing his *stamp counterfeited* are being sold as his, he would respectfully recommend both Merchants and Users requiring Expanders of his make to apply direct, in urging this he merely seeks to secure the identity of what is made by himself, by which he is content to stand or fall.

R. DUDGEON takes this opportunity of returning thanks for past favors, either by orders or recommendation, and it being his intention strictly to maintain the Quality and Workmanship so essential for such a Tool as the Expander, begs to solicit a continuance of the same.

Catalogues and Price Lists on application to

R. DUDGEON, 114, FENCHURCH STREET, LONDON E C

Digitized by Google

F. H. BERRY,

MANUFACTURER OF

ELECTRIC AND PNEUMATIC BELLS, INDICATORS,

And all kinds of fittings requisite for domestic Bell Work.

ELECTRICAL APPARATUS OF ALL KINDS.

Specialities in Window and Door Contacts.

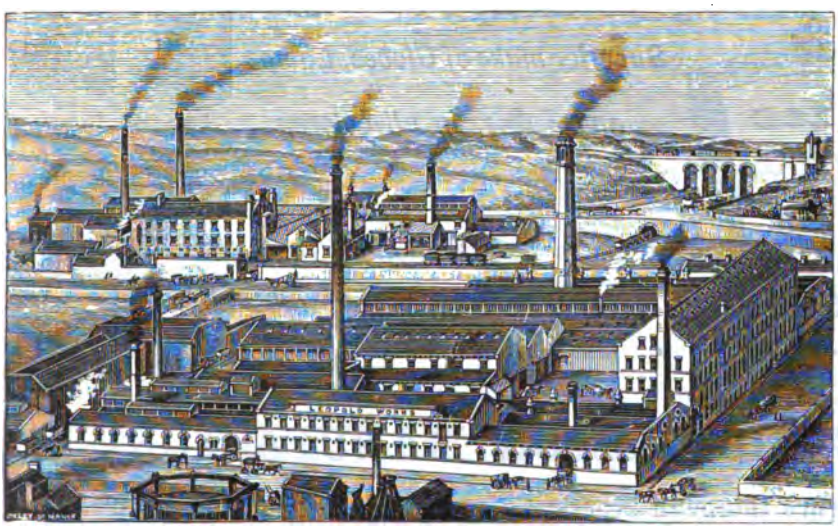
PRICE LIST ON APPLICATION.

18, PERCIVAL STREET, CLERKENWELL, E.C.

RAMSDEN, CAMM & CO.,

Iron and Steel Wire Drawers,

BRIGHOUSE, YORKSHIRE.



TRADE MARK ROBIN HOOD R&Co B.

Telegraph Wire of High Conductivity, as supplied to H.M. Postmaster-General.

Over 100-lb. pieces without Weld or Joint.

Agents—GEORGE W. SHARE and Co., 72, King William Street, E.C.

OFFICES FOR PATENTS,

POPPLEWELL, COLTON & CO.,

Consulting Engineers and Patent Agents,

(*Late DES VŒUX & COLTON*),

32, SOUTHAMPTON BUILDINGS, LONDON, W.C.,

IMPERIAL CHAMBERS, ALBERT STREET, DERBY,

4, NASSAU STREET, DUBLIN.

Patents for Inventions obtained in all Countries and Colonies. Trade Marks and Designs Registered.
Searches and Opinions on the Novelty of Inventions and the validity of existing Patents.

PAMPHLET OF INFORMATION FREE.

SPECIAL ATTENTION TO ELECTRICAL PATENTS.

Digitized by Google

MARSH and R. J. SMITH,

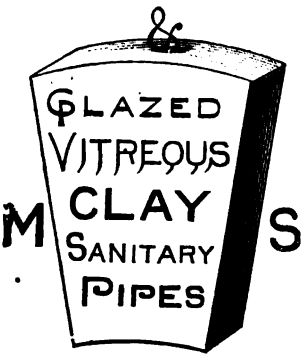
MANUFACTURERS OF

ACID PROOF ACCUMULATOR CELLS

AND OTHER APPLIANCES.

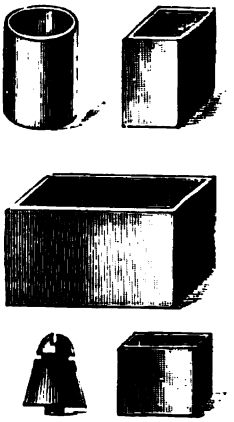
D'HUMY'S Patent SYSTEM of ELECTRIC LIGHTING,

BATTERIES—INCANDESCENT, SEMI-INCANDESCENT and ARC LAMPS.



Superior make of Globes, Lamps and Tubes, in all colors,

Also every description of Glass-ware for Electrical purposes.



ELECTRIC CARBON MANUFACTURERS.

This firm's thorough Practical Knowledge of the Trade, coupled with every Facility of Production, enable them to offer an assortment of Electrical Appliances, which for excellence of finish and price will compare favourably with other makers.

— PATENTEES OF THE —

GLAZED VITREOUS ELECTRICAL TUBES

FOR UNDERGROUND USE.

18, NEW BRIDGE STREET, BLACKFRIARS,

LONDON, E.C.

Digitized by Google

The Electric Light Carbon Company,

WORKS: 133A, GREAT SUFFOLK STREET, BOROUGH, LONDON, S.E.

Manufacturers of Ordinary Solid Carbons of every description, size, or shape; and of Cored Carbons, Patent Wired Carbons, Hollow and Metal Coated Carbons, for Electric Lighting; also Carbons for Batteries and other purposes.

TRADE  MARK.

TELEPHONE No. 2202.

QUIRK, BARTON & CO.,

61, GRACECHURCH STREET, E.C.

WORKS:

Crown Lead Works, Normandy Wharf, **ROTHERHITHE, S.E.** | St. Helen's Lead Smelting Works, St. Helen's, **LANCASHIRE.**

MANUFACTURES

SHEET LEAD, LEAD & TIN FOIL } **Specially prepared for Electrical Purposes.**

SOFT METAL TUBES (of all descriptions.)

SHEET ZINC (of any thickness).

FINE AND PLUMBERS' SOLDER.

ANTIMONY, &c.

GRIFFITH & CO.,

WORKS:—READING.

Manufacturers of all descriptions of Electrical & Telegraphic Apparatus.

Sole makers of Spagnoletti's Patent Electrical Locking for Railway Signal Levers for Double and Single Lines.

ELECTRICAL FIRE ALARMS, TRAIN DESCRIBERS, SIGNAL AND LIGHT REPEATERS.

ELECTRIC DISTANT AND TUNNEL SIGNALS, ELECTRIC TELL-TALE CLOCKS, and GENERAL FIRE ALARM BELLS, for Factories, Warehouses, Asylums, &c.

Telegraphic Stores supplied for Home and Foreign use.

ELECTRIC LIGHT ENGINEERS.

London Office:—4, Queen Ann's Gate, Westminster.

Digitized by Google

ESTABLISHED 1879.

PRIZE MEDALS:—

PARIS INTERNATIONAL EXHIBITION, 1881, AND CRYSTAL PALACE EXHIBITION, 1882.

THE ELECTRIC LIGHTING SUPPLY AND FITTING COMPANY, LIMITED.



Manufacturers of Apparatus of every description for working and fitting Electric Lights.

OFFICES:

1, VICTORIA MANSIONS, VICTORIA ST., WESTMINSTER.

WORKS:

28, YORK STREET, WESTMINSTER.

Sole Makers of Hedges' Spark Reducing Switches, & Ornamental Contact Breaker for Incandescent Lights, fitted with the Patent Reliable Safety Fuse.

"The arrangement of these Switches entirely does away with the chance of setting fire to the wood block, which sometimes takes place with those where the contact piece simply slides off above the unprotected wood."—*Vide Electrician*, June 26th 1882.

SPECIALITÉ:

THE FRANKLIN DYNAMO-MACHINE AND HEDGES' GRAVITY LAMP.

HIGH CONDUCTIVITY WIRE, AND CABLES, CONNECTORS, SWITCHES, CARBONS, etc., ALWAYS KEPT IN STOCK.

CARBON CUTTERS & BATTERY PLATE MAKERS.

Sole Agents for the BARNSLEY Carbon Company.

ABSOLUTELY PURE CARBON POINTS & CANDLES.

Digitized by Google

TO ELECTRICAL ENGINEERS & OTHER OWNERS OF STEAM POWER.

Try DUNCAN, WATSON & CO.'S

It is a perfect Engine and Machinery Oil.

Grade "A" from 2/11 per Gall.

NO CHARGE FOR CASKS.

CARRIAGE PAID TO ANY



NON-GUMMING OLIVOLINE

Hundreds of Testimonials received.

Grade "B" from 2/7 per Gall.

FREE TRIALS ALLOWED.

RAILWAY STATION in this COUNTRY.

Per Gallon.

DUNCAN, WATSON & CO.'S Heavy Cylinder and Engine Oil, (dark green) from 3s. 0d.

DUNCAN, WATSON & CO.'S Specially manufactured and largely used. **Gas Engine Oil** .. .. ,, **2s. 9d.**

BLACK ENGINE and MACHINERY OILS of every description supplied. Full particulars on application to DUNCAN, WATSON & CO., Lubricating Oil and Grease Merchants and Manufacturers, Dashwood House, New Broad Street, London, E C.

CONTRACTOR TO HER MAJESTY'S GOVERNMENT FOR ELECTRIC SIGNALS.

CHARLES H. SHARPLES, F.C.S.,

Member of the Society of Electricians and Telegraph Engineers,

UNDERTAKES THE WORKING OUT OF ELECTRICAL INVENTIONS TO PRACTICAL RESULTS.

Specifications and Claims prepared and Patent Office searches undertaken at Moderate Charges.

SCIENTIFIC INVESTIGATIONS OF ALL KINDS RELATING TO ELECTRIC LIGHT AND POWER UNDERTAKEN, AND PRACTICAL ADVICE GIVEN IN ALL ELECTRICAL MATTERS.

Plans drawn up for Architects, Builders, Contractors, Engineers, &c., of

Complete Systems for Insuring the Safety of Buildings, &c., against Lightning Discharges. Telephone or Telegragh lines erected, and the most improved Instruments supplied, either upon rental or absolute sale. High class Electrical work of every description undertaken.

ELECTRIC BELLS AND SIGNALS OF EVERY DESCRIPTION

ARRANGED FOR LARGE OR SMALL BUILDINGS:

ALSO BURGLAR AND FIRE ALARMS.

LABORATORY AND SHOW ROOMS:—

7, FISHERGATE, PRESTON.

Scale of Fees for Chemical Analysis on Application. Estimates promptly supplied.

CHALLIS BROTHERS,

BELL & BRASS FOUNDERS, BRASS FINISHERS, STAMPERS, PIERCERS & METAL DEALERS,

MANUFACTURERS OF DOMES FOR ELECTRIC BELLS.

ELECTRICAL PUSH SPRINGS, FLAT & SPIRAL SPRINGS IN STEEL, BRASS AND GERMAN SILVER.

Bell, Brass, Gun Metal, Copper, German Silver, Anti-Friction, White Metal, Lead, and Zinc Castings.

WHOLESALE AGENTS FOR WIRE, TUBE, ROLLED AND SHEET, COPPER, BRASS AND GERMAN SILVER; COPPER TAPE, REFLECTORS, &c.

BRASS WORK OF EVERY DESCRIPTION CONTRACTED FOR.

BUSHBERRY WORKS:—SIDNEY ROAD, HOMERTON, E.

Digitized by Google

INSULATORS.

Crystal Porcelain Pottery Company,

LIMITED.



TRADE MARK.

MANUFACTURERS OF

INSULATORS, SHACKLES, ELEMENT CELLS FOR BATTERIES, ETC.

Telegraphic and Electrical Ware.

THE NEW PORCELAIN TILES.

VITREOUS, IMPERVIOUS, IMPERISHABLE INSULATING SLABS.

Proprietors of the Registered Insulating Accumulator Rests.

SPECIMENS ON VIEW:—

23, ST. SWITHIN'S LANE, E.C.

Works:—COBRIDGE, STOKE-ON-TRENT.

Digitized by Google

EDMUND RATCLIFF,

59, ST. PAUL'S SQUARE, BIRMINGHAM.

MANUFACTURER OF

GAS FITTINGS, CHANDELIERS, BRACKETS, LANTERNS, &C.,

ELECTROLIERS & ELECTRIC LIGHT FITTINGS.

COPYING PRESSES, LETTER BALANCES, LETTER CLIPS, &c.

BRASS FENDERS, FIRE BRASSES, FIRE DOGS, FIRE GUARDS AND SCREENS.

THE NORTON HOUSE AND SHIP VENTILATOR.

The PRACTICAL SOLUTION of the PROBLEM of VENTILATION ESPECIALLY designed for the VENTILATION of Houses, Ships, Tunnels and Mines.

The ONLY positive and perfectly EFFICIENT VENTILATOR known. It always gives satisfaction, and has never failed to accomplish the results required. It establishes a standard of VENTILATION never before reached. The limit of its successful application to SHIPS, Buildings, Tunnels and Mines is simply that of the power required.

Applied to SHIPS, it will improve the sanitary condition of every sea-going vessel: and for Merchant Vessels, carrying Cattle, Grain, Fruit, Tea, Coal or Sugar it is invaluable; as, with this Ventilator attached, there will be no danger of Cattle suffocating for want of pure air; of Grain Heating; Tea sweating; Fruit rotting; Coal igniting spontaneously; or of Sugar dissolving BY reason of damp holes and steam.

The apparatus is simple and strong in its construction; noiseless in its operation, and not liable to get out of order.

Applied to Coal Ships and Bunkers it must positively remove all danger of explosion from coal gas; and while removing all foul and impure air from every part of the vessel, it will have a very beneficial effect upon the Wood and Iron Work.

Properly applied to Coal Mines it will provide every part of the mine with pure air and prevent explosion.

Tunnels, by its application, can be kept free from smoke and constantly supplied with fresh air.

All enclosed places constructed underground, for whatever purpose used, can be kept thoroughly ventilated and free from foul air as the most favourably situated enclosures above ground.

The SYSTEM HAS BEEN SUCCESSFULLY APPLIED to a number of Vessels and Public and Private Buildings in the United States; to the Criterion Theatre, London; and to the BELGIAN CHAMBER OF REPRESENTATIVES at Brussels.

It is also used by the BOARD OF TRADE, the GREAT WESTERN STEAMSHIP COMPANY of Bristol, and others.

For the VENTILATION of EMIGRANT SHIPS it is admitted to be PERFECTION, and leaves nothing more to be desired.

Those various and weak apologies for VENTILATION known as Deck Cowls, upcast and downcast Ventilators, are entirely dispensed with where the Norton system is used.

For Copies of Testimonials, Particulars, &c., address—

THE NORTON VENTILATOR COMPANY, LIMITED,

84, CANNON STREET, LONDON, E.C.

THE ELECTRIC CARBON, STORAGE AND APPARATUS MANUFACTURING COMPANY OF SCOTLAND,

LIMITED.

EXCHANGE BUILDINGS, LEITH.

SPECIAL ESTIMATES GIVEN in all Cases. EFFICIENCY GUARANTEED.

Most Economical System of ELECTRIC LIGHTING.

MOST EFFECTIVE STORAGE BATTERIES.

CHEAPEST DYNAMO MACHINES MADE.

CHEAPEST INCANDESCENT LAMP.

MOST UNIQUE ARC LAMP.

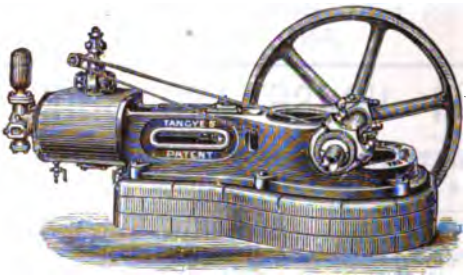
BEST QUALITY CARBONS.

Digitized by Google

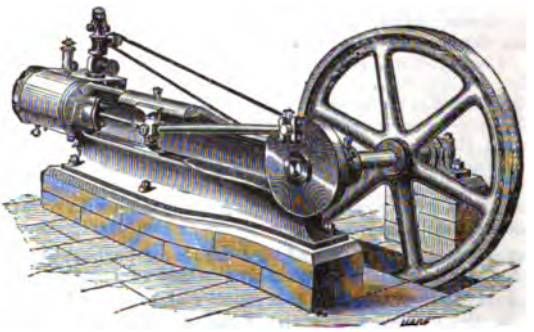
TANGYES LIMITED,

CORNWALL WORKS, BIRMINGHAM.

LONDON :—Queen Victoria Street, E.C.
NEWCASTLE :—St. Nicholas Buildings.
MANCHESTER :—Deansgate.
GLASGOW :—Argyle Street.



TANGYES' "SOHO" ENGINE.



TANGYES' HORIZONTAL ENGINE.

MAKERS OF

HIGH-SPEED HORIZONTAL AND VERTICAL ENGINES,

SPECIALLY ARRANGED FOR DRIVING

ELECTRIC MACHINES.

THE "TANGYE" GAS ENGINE.

HORIZONTAL AND VERTICAL DONKEY PUMPS,

Vertical, Cornish, and Multitubular Boilers,

Tangyes' Centrifugal Pumps, Hand and Force Pumps,

HAND, STEAM, AND HYDRAULIC CRANES,

CRABS, SCREW-JACKS, PULLEY-BLOCKS, &c.,

LATHES, SHAPING AND PLANING MACHINES,

AND EVERY DESCRIPTION OF

MACHINE TOOLS.

Digitized by Google



Manufacturers of Telegraph Appliances, and Materials for making and laying Submarine and Underground Cables.

IRON & STEEL TELEGRAPH BUOYS OF ALL KINDS.

Grapnels, both Patent & Ordinary; Centipedes, Creepers, Mushrooms, Sinkers, Patent Tanks, Picking-up & Paying-out Machinery, Gears, Dynamometers, Bow & Stern Gear, Steam & Hand Hauling Gears, Rope & Chain Fittings, Special Wire Sounding Machines, Cable Drums, Splicing and Jointing Tools, &c., &c.

MACHINERY DESIGNED & CONSTRUCTED FOR THE COMPLETE EQUIPMENT OF TELEGRAPH CABLE FACTORIES AND VESSELS.

All Apparatus and Material used in the Construction and Maintenance of

LAND LINES, VIZ.:–

Insulators—*Johnson & Phillips'* Patent Fluid Insulators, *Lewis's* Patent Clip Insulators, and all kinds of the ordinary form.

Batteries— Sole Makers of *Higgins'* Patent Bichromate Batteries, and all the ordinary forms. Contractors for the supply of Zinc and Carbon Battery Plates of special quality, Shackle Straps, &c.

Poles — Wrought Iron or Composite Poles of various kinds, for Telegraph, Telephone, and Electric Lighting.

IRON WIRE, STRAND AND STEEL ROPES.

MAKERS OF SPECIAL UNDERGROUND TORPEDO AND FIELD CABLES, WITH SINGLE OR MULTIPLE CORES.

Insulated Copper Wires, Strand and Ropes, Taped or Braided, Cotton or Silk Covered, and Electric Light Cables.

ELECTRIC LIGHT: MAKERS OF ELECTRIC LAMPS.

ESTIMATES GIVEN FOR COMPLETE SYSTEMS OF ELECTRIC LIGHTING.

Digitized by Google

THE

LONDON & PROVINCIAL Electric Lighting & Power Generating Company, Limited.

DIRECTORS.

THE RIGHT HONOURABLE LORD WALLSCOURT, Ardfry Castle, Galway, *Chairman.*

J. HUBBACK, ESQ., J.P., Trustee and Director of the Liverpool, London and Globe Insurance Company, and Chairman of the British Electric Light Company, Limited, *Vice-Chairman.*

E. H. BAYLEY, ESQ. (Messrs. E. H. BAYLEY & Co.), Newington Causeway.

J. DUNHAM-MASSEY, ESQ., Assoc. Mem. Inst. C.E., Wood Vale, Forest Hill.

GENERAL HAMILTON, R.E., Dagnall Park, Selhurst.

W. MOLESWORTH-ST. AUBYN, ESQ., M.P., Carlton Club.

BENJAMIN MOORE, ESQ., M. Inst. C.E., and Director of PIGOU, WILKS & LAURENCE, Limited.

THE HONOURABLE LINCOLN STANHOPE, Harrington House, Charing Cross.

BANKERS.

THE NATIONAL BANK, LIMITED, 13, Old Broad Street, E.C., and its Branches.

CONSULTING ENGINEER.

SIR CHARLES BRIGHT, M. Inst. C.E.,
Consulting Engineer to the British Electric Light Co., Limited.

ELECTRICAL ENGINEER.

ALEXANDER L. LINEFF, ESQ.

MANAGER.

RICHARD P. WINGROVE, ESQ.

SECRETARY.

GEORGE HERBERT REDWOOD, ESQ.

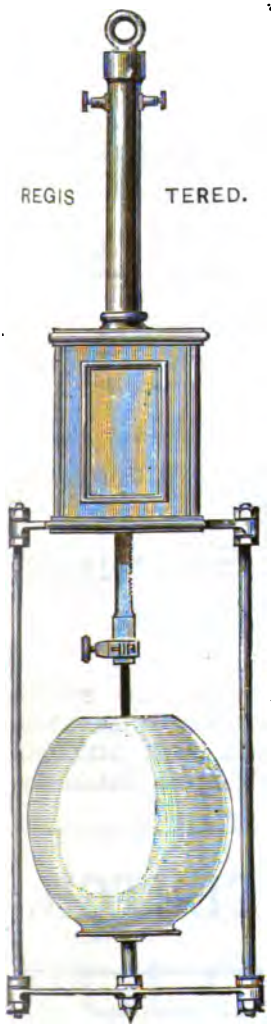
OFFICES—21, Great Winchester Street, Old Broad Street, E.C.
WORKS—42, Newington Causeway, S.E.

Estimates, Price Lists, &c., obtained on application to the Manager.

Digitized by Google

STANDARD
FYFE-MAIN ELECTRIC LAMP.

BOTH ARC & INCANDESCENT SYSTEMS.



THIS LIGHT IS

UNEQUALLED FOR

BRILLIANCY,

ILLUMINATING POWER

AND STEADINESS,

AND IS THE MOST SIMPLE

AND INEXPENSIVE,

COSTING **LESS** THAN

GAS.

Full particulars on

Application at the Offices

of the



STANDARD
FYFE-MAIN ELECTRIC LIGHTING & CONSTRUCTION
COMPANY,

Works:—BRIXTON.

Offices:—26, QUEEN VICTORIA STREET, E.C.

Digitized by Google

ESTABLISHED 1851.

BIRKBECK BANK,

SOUTHAMPTON BUILDINGS, CHANCERY LANE.

Current Accounts opened according to the usual practice of other Bankers, and Interest allowed on the minimum monthly balances, when not drawn below £25. No commision charged for keeping Accounts.
The Bank also receives money on Deposit at Three per cent. Interest, repayable on demand.
The Bank undertakes for its Customers, free of charge, the custody of Deeds, Writings, and other Securities and Valuables, the collection of Bills of Exchange, Dividends, and Coupons; and the purchase and sale of Stocks and Shares.
Letters of Credit and Circular Notes issued. A Pamphlet, with full particulars, on application.

FRANCIS RAVENSCROFT, Manager.

The Birkbeck Building Society's Annual Receipts exceed Four Millions.

HOW TO PURCHASE A HOUSE FOR TWO GUINEAS PER MONTH, with immediate possession and no Rent to pay. Apply at the Office of the BIRKBECK BUILDING SOCIETY.

HOW TO PURCHASE A PLOT OF LAND FOR FIVE SHILLINGS PER MONTH, with immediate possession, either for Building or Gardening purposes. Apply at the Office of the BIRKBECK FREEHOLD LAND SOCIETY. A pamphlet, with full particulars, on application.

Southampton Buildings, Chancery Lane. FRANCIS RAVENSCROFT, Manager.

INCRUSTATION IN STEAM BOILERS

Cannot be annihilated but its removal may be easily effected and further accumulations prevented by the regular and intelligent use of

LITHOLINE

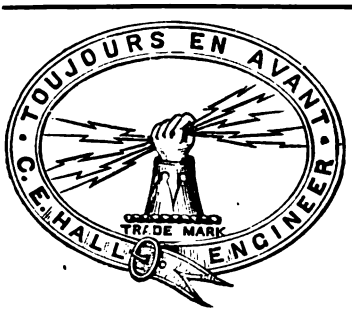
THE ONLY COMPOUND RECOMMENDED BY BOILER INSPECTION COMPANIES.

LITHOLINE acts on well-understood Scientific Principles; is **FREE FROM ACID**; precipitates lime and magnesian Salts; softens and loosens the hardest scale, and arrests immediately the most virulent and dangerous corrosion and wasting. Being also a powerful deodoriser it effectually purifies the foulest water and is therefore especially suitable for offensive Mill Reservoirs, &c.

See Article in MECHANICAL WORLD, *August 26th*, 1882.

COPIES OF ANALYSIS OF WATER RECEIVE PROMPT ATTENTION. ANALYSIS SPECIALLY MADE.

Testimonials, Prices and other Particulars from THE LITHOLINE COMPANY, 11, Queen Street, OLDHAM, near MANCHESTER.



C. E. HALL, ENGINEER,

SHEFFIELD.

Maker of WROUGHT IRON AND STEEL SHAFTING, PLUMMER BLOCKS, BRACKETS, WALL BOXES, SPUR, BEVIL AND HELICAL GEARING, suitable for High Speed Machinery. Electric Lighting, &c., &c.

THE

"RELIABLE" FRICTION CLUTCH,

HALL'S PATENT.



THE

"RELIABLE" FRICTION CLUTCH

Is the Best in the Market.

Specially designed for driving Dynamo Machines, Electric Motors, and other high speed Machinery.

For Prices and Terms apply as above,

OR TO

STAND 15,

ELECTRIC LIGHT EXHIBITION,

ROYAL AQUARIUM,

WESTMINSTER.



Digitized by Google

THOMAS A. ASHTON,

NORFOLK BELTING WORKS,

36, 40 & 42, NORFOLK ST.,

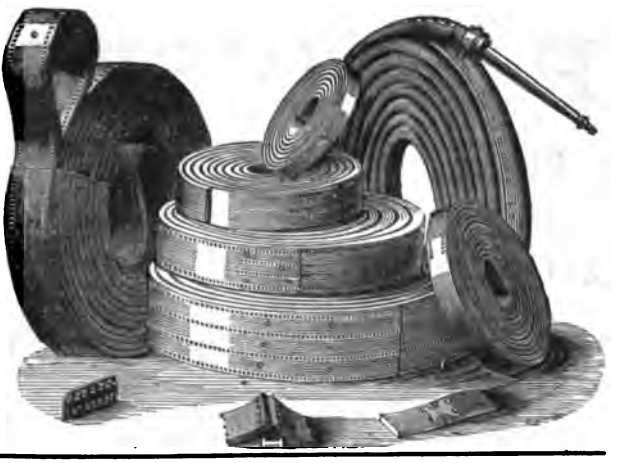
SHEFFIELD.

Manufacturer of Superior LEATHER BELTING, CEMENTED, LACE, HEMP, and COPPER SEWN SPECIALITY.

ASHTON'S LACE SEWN AND PEGGED DOUBLE AND TREBLE BELTS.

Shipper's Enquiries Solicited.

STOCK KEPT OF LEATHER, COTTON, AND INDIA RUBBER BELTING.



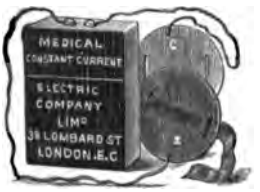
THE MEDICAL CONSTANT CURRENT ELECTRIC GENERATOR,

For the CURE of DISEASE and the RELIEF of PAIN by means of a constant current of ELECTRICITY,
Without the use of Drugs, a cheap and scientific instrument, which passes a mild current of Electricity imperceptibly through the human body, and acts as a powerful restorative of health and vigour.

UNPRECEDENTED SUCCESS

In the Treatment of

NERVOUS DISORDERS.



Can be carried in the pocket

or placed under the pillow

without inconvenience.

Price 12/- forwarded Post Free on receipt of Postal Order, Payable to
The Medical Constant Current Electric Company, Limited, 38, Lombard Street, or at their
Electrical Depot, 49, Queen Victoria Street, E.C.

Certificate from J. A. BERLY, C.E., A.S.T.E., *Consulting Electrician to the Sun Light Electric Company.*
LONDON, 16, NEW BRIDGE STREET, *26th August*, 1882.

Dr. HENRY STANBROUGH, Chairman of the Medical Constant Current Electric Company, Limited.

Dear Sir,—I have examined and tested your Medical Constant Current Electric Generator, and found it a very simple, compact, and effective arrangement.

The current which it generates is constant, and deflects the needle of a galvanometer, after being made to pass through a circuit of 10,000 ohms resistance, that is to say, equal to 741 miles of ordinary telegraph wires (No. S.B.W.G.)

The battery being of such reduced sizes, and containing no liquid which can be spilled (the exciting solution being all contained in the bibulous paper of which it is impregnated to saturation), is perfectly portable.

I have had no occasion yet to test its working capacity as this is a time test, but am satisfied that it will give a constant current for a long time, and can be renovated at very little expense and trouble, as the re-dipping of the bibulous paper in ordinary water will effect the purpose. I remain, dear Sir, yours faithfully, J. A. BERLY, C.E., A.S.T.E., &c.
41, QUEEN VICTORIA STREET, LONDON, E.C., *7th September*, 1882.

To DR. STANBROUGH, Chairman of the Medical Constant Current Electric Company.

Sir,—I have much pleasure in now informing you that beyond the results already mentioned, *i.e.*, the deflection of a galvanometer needle through a resistance of 5,000 ohms (about 300 miles of telegraph line), I have passed the current through the human body, and notwithstanding the high resistance thus introduced, have by means of a galvanometer been able to prove conclusively that the current is powerful enough to pass through this resistance.

Yours faithfully, J. T. MAYFIELD.

TESTIMONIAL OF CURE OF CONGESTED LIVER.
RICHMOND, SURREY, *December 13th*, 1882.

To the Directors of the Medical Constant Current Electric Company, Limited, 38, Lombard Street, London.

Gentlemen,—I have used one of your Electric Generators for Congested Liver, and after applying the instrument on three occasions according to the instructions in your pamphlet, I derived great relief, and have had no recurrence of the disorder, and most strongly recommend its use to anyone similarly affected. Yours faithfully, RICHARD BELL.

VULCANIZED FIBRE

(PATENTED.)

The New Substitute for Metals, Ivory, Vulcanite, Ebony, Hard Wood, &c.

It is one of the best Non-conductors of Electricity, and is extensively used by Electric Light Companies and Electrical Instrument Makers for purposes of Insulation, &c.

It works easily in a lathe; can be drilled, rivetted, sawed and cut in sharp screw threads. It receives a beautiful polish.

Sold in Sheets of 5ft. 6in. by 3 ft. 6in., from one-fiftieth to an inch in thickness, at 2/3 per lb.

MOSSES & MITCHELL, 62, QUEEN VICTORIA ST., LONDON, E.C.

Digitized by Google

P. ORMISTON & Co.,

Brass & Copper Manufacturers & Merchants,

25 & 27, OLD STREET, ST. LUKE'S,

LONDON, E.C.

ESTABLISHED 1796.

HIGH CONDUCTING
COPPER and GERMAN SILVER WIRE DRAWERS.

All Work finished to the Decimal Gauge.

ELECTRICAL WIRES,

INSULATED WITH SILK AND COTTON,

ALL SIZES KEPT IN STOCK.

GERMAN SILVER & BRASS WIRE,

TEMPERED FOR SPRINGS.

WIRE STRAIGHTENED, FLATTENED, & CUT TO LENGTHS.

BRASS AND COPPER WEAVING WIRE,

Scratch, Brush, & Drawing Wires, &c., &c.

ALL COPPER WIRES 97 % CONDUCTIVITY.

Digitized by Google

BINKO'S
PATENT LEVER ELECTRIC BELL





Has the following advantages over the Electric Bell now in general use:—

1. The Armature works on Pivots instead of Springs, and has a Lever Movement, whereby all vibration is avoided.
2. The sound is better on account of the internal action of the Hammer.
3. The Coil, Armature, and Hammer are completely fixed on a Metal Base.
4. The action of the Hammer, consequently the sound of the Bell, can be any time instantly regulated according to the current available by simply turning the apparatus on its axis.
5. The Coil and Hammer are entirely covered by the Bell, and thereby protected.
6. All the Bells are double nickle-plated, and every part made only of the very best material.
7. **The Patent Lever Electric Bell** occupies less than a quarter of the space of the usual Electric Bell.
8. **The Patent Lever Electric Bell** is more compact, and has a much nicer appearance.
9. **The Patent Lever Electric Bell** is well adapted for Railways and Ships, as no vibration can alter the striking, owing to its Pivot and Lever action.
10. **The Patent Lever Electric Bell** is cheaper.

THE PATENT BINKO GALVANIC BATTERY,

FOR

ELECTRIC BELLS, INDICATORS, TELEGRAPHS, AND TELEPHONES, ETC.

It is a well-known fact that up till now the Carbon Manganese Battery has been found the most practical for Electric Bells, Indicators, Telegraphs, Telephones, etc., etc. It consists of a Porous Pot, containing a Carbon Block, surrounded by crushed Carbon and Manganese, and a Zinc Rod, placed in a larger receptacle. There is also another arrangement doing away with the Porous Pot, but having a Carbon Block, to which are attached two Agglomerate Plates, by means of India-rubber Bands, and known under the name of the Agglomerate Battery. Now, our endeavour was to simplify the above Batteries, and we have succeeded in reducing the whole element to two items only, namely, a Zinc Rod, and a Block made of a combination of various materials.

It will be easily understood by Electricians, and anyone having knowledge of the use and construction of Electric Batteries, how superior our arrangement must be in comparison with all prior Electric Batteries. We have found after many trials that we have not only gained by our Patent Improved Galvanic Battery simplicity, but we guarantee that after comparative working of any Leclanche Cell with ours—say after one, six, twelve, or twenty-four months—the Leclanche Cell loses 25 to 75 per cent. of its power at starting, whereas our Patent Improved Galvanic Battery will retain almost its nominal strength. In addition, we must mention that our Patent Improved Galvanic Battery is, in fact, everlasting; our combination Block has only to be cleaned after hard work, no renewal of Porous Pots, Manganese, or Agglomerate Plates being necessary.

The usual Sal Ammoniac Solution is used as exciting liquid, and the Battery can be started at once.

The price of our Patent Improved Galvanic Battery is considerably below that of the usual Batteries.

MESSRS. BINKO, SIEGEL & CO.,

CRYSTAL PALACE, S.E.

City Agents—BINKO & CO., 12, Coleman Street, Bunhill Row, E.C.

Manufacturers of Carbons, Dynamo-Electric Machines, Electric Trams & Railways.

Digitized by Google

SPECIAL FIRST AWARD. SYDNEY, 1879. | SILVER MEDAL. MELBOURNE, 1880. | GOLD MEDAL. ADELAIDE, 1881.

LLOYD & LLOYD,

Albion Tube Works, BIRMINGHAM, and Coombs Wood Tube Works, HALESOWEN,

MANUFACTURERS OF

WROUGHT IRON WELDED TUBES & FITTINGS,

FOR GAS, STEAM, WATER, &c., PLAIN OR GALVANIZED.

BOILER TUBES in Iron, Homogeneous Metal and Steel.

HYDRAULIC TUBES, BORING AND LINING TUBES FOR WELLS, TUYERE COILS.

LARGE TUBES UP TO 4 FEET DIAMETER.

London Office: 90, Cannon St., E.C. Warehouses: London, Liverpool & Manchester.

CONTRACTOR TO HER MAJESTY'S GOVERNMENT FOR ELECTRIC SIGNALS.

G. SHARPLES,

ELECTRICIAN, TELEGRAPH & ELECTRIC LIGHT ENGINEER, PRESTON.

PROPRIETOR OF THE PRESTON TELEPHONIC EXCHANGE

(Under Special License from the Postmaster-General).

TELEPHONE or TELEGRAPH LINES erected, and INSTRUMENTS supplied either upon Rental or absolute Sale.

TELEPHONE EXCHANGES.

G. S. is prepared to tender for the erection and undertake the maintenance of **Telephone Exchanges** in the United Kingdom, and to supply complete outfits for their erection abroad.

ELECTRIC BELLS AND INDICATORS.

Mansions, Hotels, Houses, Steam Vessels, Yachts, &c., fitted up.
Sharples' Patent Electrical High and **Low Water Gauge** and **Alarum.**

LIGHTNING CONDUCTORS ERECTED.

Patent Lightning Conductor Tape, in continuous lengths, **Rope Conductor, Stranded Copper** of thick and fine wires, **Copper Clips** and **Nails.**

ELECTRIC LIGHTING.

Estimates and all information forwarded of the different systems.

ESTIMATES, REPAIRS, &c.

G. S will at all times be pleased to forward probable **Estimates** to firms in any part of the United Kingdom for **Electrical Work** of every description, and will be glad to undertake the repairing of **Telephone** or **Telegraph Lines** in any part of the country. Competent **Electricians** and **Linemen** sent to any part at a few hours' notice.
Electrical or **Scientific Instruments** of all kinds repaired.
Show Rooms for **Electric Signals, Chemical Apparatus,** &c.

HUMM'S TURCO-ELECTRIC BATHS.

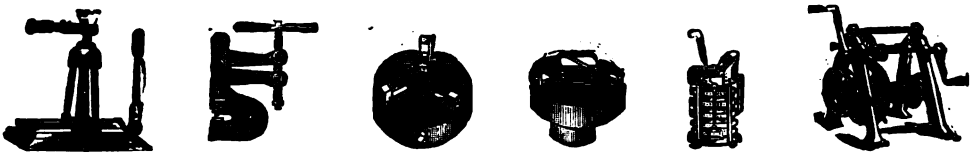
The most luxurious and curative in the world.

Establishments: 727, COMMERCIAL ROAD EAST, LONDON, E., and CHESTER LODGE, LOUGHTON, on the borders of Epping Forest.

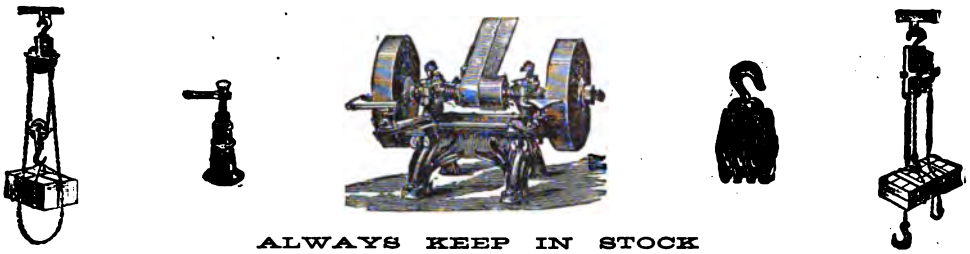
By the peculiar construction of these Baths, and the adaptation of the Electric Machinery thereto, a pleasant current of Electricity, gentle or powerful to suit the requirements of every case, is forced through the water and made to permeate the whole system, disentegrating and expelling through the pores of the skin all effete matter and poisonous substances, which are the forerunners of numerous diseases. For full particulars of Mr. HUMM'S unique system of Electropathy, see descriptive Pamphlet, post free on application as above.

Digitized by Google

SELIG, SONNENTHAL & CO.,



MANUFACTURERS & MERCHANTS,



ALWAYS KEEP IN STOCK

American Lathe and Drill Chucks, Twist Drills, Parallel Vices, Diamond Turning Tools, Tube Cleaners.

FANS AND FORGES, PULLEY BLOCKS, LIFTING JACKS, ROPE BLOCKS.



LATHES, PUNCHING, SHEARING, SCREWING, DRILLING AND PLANING MACHINES, EMERY WHEELS & EMERY GRINDERS.

American and other special Tools and Machinery in great variety.





Timm's Patent Expanding Boring Tool.—Will bore and finish holes in Metals perfectly true and parallel. One size of tool will cut a range of sizes. Can be applied to all existing Lathes, Boring and Drilling Machines. Wearing parts easily renewed at little cost.

Timm's Patent Tool Holders for Boring, Slotting, Turning, Planing and Shaping, have the following advantages over all existing Tool Holders. One holder applicable to any of the above-named purposes; the use of square steel which the workmen are most used to; being perfectly rigid, yet allowing of being adjusted to any desired angle.



SOLE LICENSEES:

SELIG, SONNENTHAL & CO.,

85, QUEEN VICTORIA STREET, LONDON, E.C.

Digitized by Google

LAING, WHITE & WHARTON,

8 & 9, HOLBORN VIADUCT,

LONDON, E.C.,

Are prepared to give Estimates for all kinds of

ELECTRIC INSTALLATIONS & FITTINGS,

Including all descriptions of

ELECTROLIERS, BRACKETS, PENDANTS, &c., &c.,

Of entirely Novel and Unique Design, and to arrange Contracts for any

SYSTEM of LIGHTING, and every kind of ELECTRIC WORK.

And as they are Agents in LONDON for the

SWAN

UNITED ELECTRIC LIGHT COMPANY, LIMITED,

The well-known **INCANDESCENT LAMPS**

Of this Company can be supplied by them in any number, either for

Home Use or for Export.

EXHIBITION ROOMS:

8 & 9, HOLBORN VIADUCT, LONDON, E.C.

Where a COMPLETE INSTALLATION may be seen in operation at any time of the day.

LAING, WHITE & WHARTON

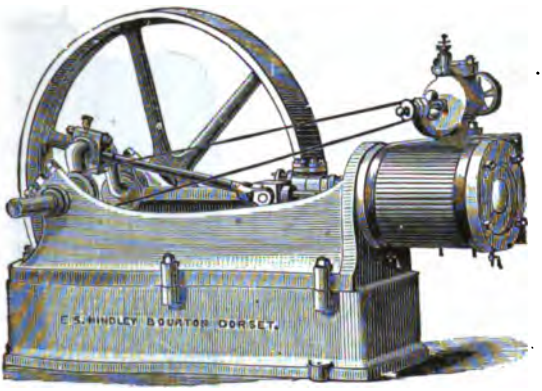
Are prepared to supply every kind of

ELECTRIC APPLIANCE ON THE SHORTEST NOTICE.

Digitized by Google

E. S. HINDLEY,

BOURTON, DORSET.



VERTICAL & HORIZONTAL

STEAM ENGINES,

WITH OR WITHOUT

VERTICAL, CORNISH, OR MULTITUBULAR

BOILERS.



GOLD MEDAL.

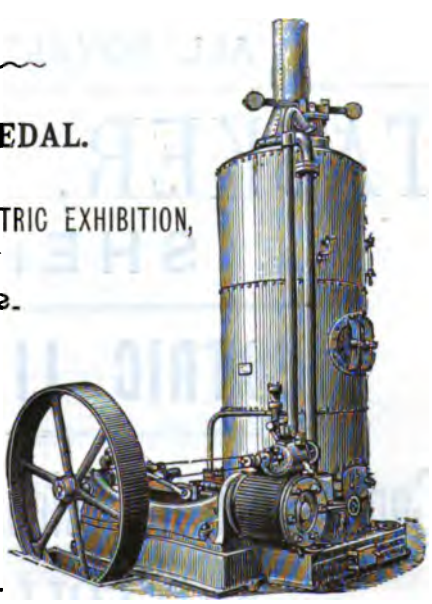
INTERNATIONAL ELECTRIC EXHIBITION,

1882.

ALWAYS

IN

STOCK.



ILLUSTRATED CATALOGUES ON APPLICATION.

LONDON OFFICE:

52, QUEEN VICTORIA STREET, E.C.

Digitized by Google

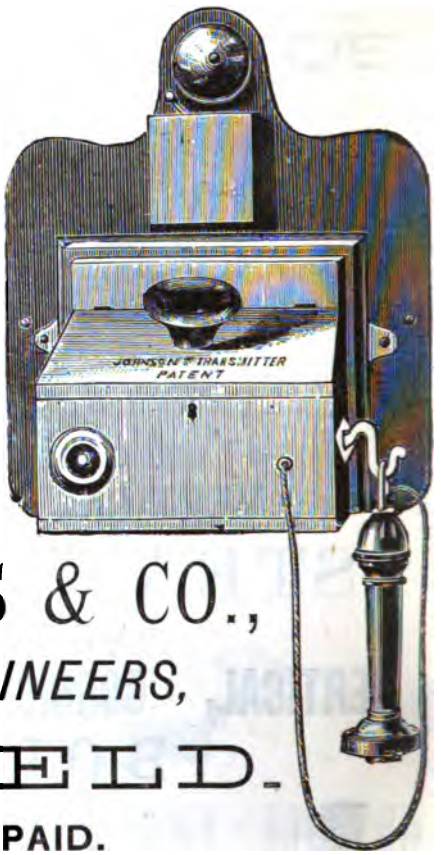
JOHNSON'S

PATENT TRANSMITTER.

IN COMBINATION WITH

BELL'S PATENT

TELEPHONE.



Supplied by

TASKER, SONS & CO.,

ELECTRICAL ENGINEERS,

SHEFFIELD.

ALL ROYALTIES PAID.

TASKER, SONS & CO.,

SHEFFIELD.

ELECTRIC LIGHT ENGINEERS.

Contractors for Telephone and Telegraph Lines,

AND COLLIERY SIGNALS.

HOTEL AND HOUSE BELLS.

Digitized by Google

THE

Electric "Sun" Lamp & Power Co.,

LIMITED.

Offices: St. Margaret's Offices, Victoria Street, Westminster,

LONDON, S.W.

Works and No. 1 Distributing Station, 6, Riding House Street, Regent Street,

LONDON.

Chairman.

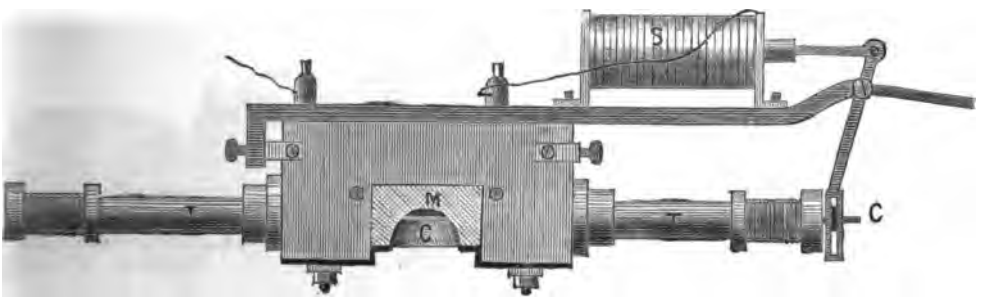
LORD BRABOURNE.

Deputy-Chairman.

SIR JAMES CARMICHAEL.

Secretary.

J. REEVE, Esq.



The "**SUN**" Lamp is the only existing arc lamp giving an absolutely steady light.

The light obtained with the "**SUN**" Lamp is, as regards steadiness, perfectly equal to the small incandescent lamps.

In this system the Voltaic Arc is not used directly for light producing, the heat of the arc being utilised only for heating to whiteness a small block of Carrara marble, which in its turn emits a powerful golden light.

The focus having a large surface, the light is not trying to the eyes as it is the case with an arc light, the form of which is a mere point; the light is, moreover, of a very pleasant colour and well adapted to decorative effect.

It has been pronounced by M. Garnier, the architect of the Paris Grand Opéra, as the only one suitable for lighting the *foyer* of that splendid establishment where Baudry's celebrated ceiling pictures had never been well seen before the "**SUN**" Light was made to shine upon them.

The Lamp is of the utmost simplicity, being devoid of any mechanism or moving part, and any ordinary person can take charge of it.

In it the carbon pencils are consumed at a very slow rate, the cost of replacing the marble and of renewing the carbons being at the rate of ½d. per hour. (Four inches of carbons last sixty hours.)

The "**SUN**" Lamp is admirably suitable for picture galleries, reading, dining and drawing rooms, theatres, factories, workshops, etc. It is also particularly adapted for printing establishments and compositors rooms. It has been employed with the greatest success for the last five months in one of the composing rooms of the *Times* office.

The light can be made to vary from 500 to 50,000 candle power, and for lights of 1,500 candle power, the amount of horse power required to work it is 1 H.P. actual for each 1,000 candle power (actual) which is equal to the result given by the best arc lamps.

THE ELECTRIC "SUN" LAMP AND POWER COMPANY, LIMITED, are now prepared to undertake the supply and installations of the lighting up of any place by their system, also to let plant out on hire on the sale or return principle.

For particulars apply to the Secretary of

THE ELECTRIC "SUN" LAMP & POWER COMPANY, LIMITED,

St. Margaret's Office, Victoria Street, Westminster, London, S.W.

Digitized by Google

The Crompton-Winfield Electric Light Association.

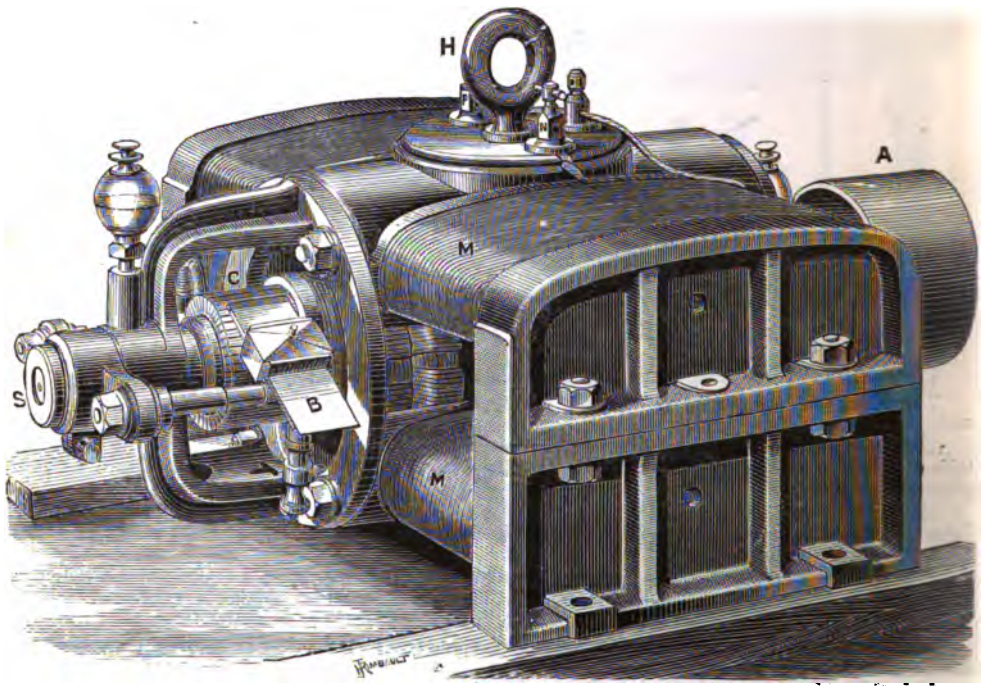
R. E. CROMPTON & CO.,

ARC WORKS, CHELMSFORD,

London Office:—MANSION HOUSE BUILDINGS, E.C.

R. W. WINFIELD & CO.,

CAMBRIDGE ST. WORKS, BIRMINGHAM.



ELECTRIC LIGHT ENGINEERS,

AND MANUFACTURERS OF

Electric Light Machinery, Dynamo Machines, Arc Lamps, and all kinds of Electric Light Apparatus.

GOLD MEDALS FOR BURGIN MACHINES AND CROMPTON LAMPS AT PARIS INTERNATIONAL EXHIBITION, (1881), AND CRYSTAL PALACE EXHIBITION, (1882).

Digitized by Google

ESTABLISHED 1830.

JOHN & JOSEPH HUGHES,

Successors to the Late JOSEPH HUGHES,

Brass, Gun-Metal, Phosphor Bronze Casters in General.

MILL BRASSES, RAILWAY WAGON BRASSES, AXLE CAPS, NUTS AND COLLETS, &C.

GUN-METAL BICYCLE FITTINGS.

Metal Dealers, Manufacturers of Ingot Brass Gun Metal and Phosphor Bronze.

Albion Metal Works, Woodcock St., (late Aston St.,) BIRMINGHAM.

ROBERT MORGAN & SON,

Oil, Tallow, and Cotton Waste Merchants,

AND FACTORS OF

ELECTRO & STEREOTYPERS, BUILDERS & MARBLE MASONS' MATERIALS & REQUISITES.

Manufacturers of Patent Steam Packings and high-class Oils for Electro-Dynamo and other fast-running Machinery.

ENGINEERS' STORES OF EVERY DESCRIPTION.

213 & 217, BLACKFRIARS ROAD, LONDON, S.E.

J. T. GENT & Co.,

FARADAY WORKS, LEICESTER.



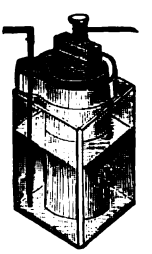
MANUFACTURERS (Wholesale and for Export) OF

ELECTRIC AND PNEUMATIC BELLS,

Telephones, Carbon Transmitters without Diaphrams,

Insulated Wires, Pushes, Batteries, &c.

OVER 100,000 AT WORK. Estimates Free.

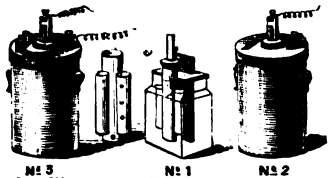


Our New Pamphlet.—"How to fix ELECTRIC BELLS," Six Stamps.

Digitized by Google

FOUR SILVER AND ONE GOLD MEDALS.

CLORIS BAUDET NON-POLARIZING BATTERY.



N° 3 Fr. 17. N° 1 Fr. 10. N° 2 Fr. 15.

The non-polarising cell does not emit any smell, and is the most energetic and constant of all other known cells, and the only one adapted for the economical production of Electric Lighting. It is also available for all other uses, such as Telegraphy, Telephone, Signalling Bells, Electric Clocks, Electro-gilding and Plating, Nickeling, Electro-Depositing, Transmission of Power, Induction Coils, Medical purposes, Lighting, etc.

Batterie de 6 Eléments Impolarisables.



Pile Impolarisable de CLORIS BAUDET.

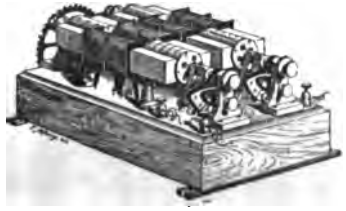
The cells No. 4 and 5 sizes (rectangular pattern) exceed in energy (electric intensity) that of Bunsen; the said energy is not only maintained for a long period (a few months), but also its electromotive force; the two qualities render the said battery eminently fit for Electric Lighting purposes.

The expense of working it is one centime ($\frac{1}{10}$d.) per hour per cell when applied to Electric Lighting, and only one-half of that sum ($\frac{1}{20}$d.) when applied to other purposes. It does not consume when at rest.

PRICES

No. 4, height 7 inches; length 5½ inches; width 3¼ inches; (3 pints) 10³/₀.—Battery of six cells in a case	£3 12 0
No. 5, height 9 inches; length 7¼ inches; width 3¾ inches; (6 pints) 14/0.—Battery of six cells in a case	£5 0 0
No. 4, Battery of 12 cells with commutator for quantity and tension	£8 0 0
No. 5, Do. 12 do. do. do. do.	£10 10 0

MOTOR & MAGNETO-DYNAMIC MACHINE OF CLORIS BAUDET.



The annexed sketch of the *Single Motor* illustrates the apparatus at a scale of $\frac{1}{10}$ of its full size. It is *reversible* and can be used for producing at will, power or electricity. It works Sewing Machines, Rotary Pumps, Lathes, Ventilators, Boats, Electric Lamps, Electro-Depositing, etc., etc.

PRICES

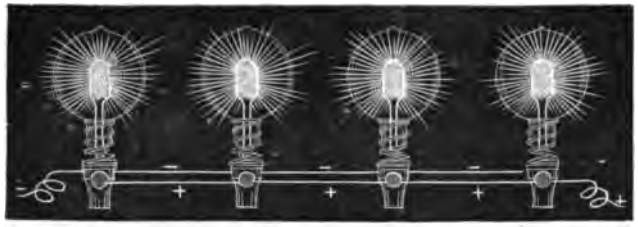
Single apparatus (with only one coil) with instantaneous reversing motion..	£6 0 0
Double apparatus (with two coils) do. do. do...	£12 0 0

N.B.—This Motor is guaranteed to yield from three to four times the results of all the known Systems of small Electro-Motors.

Digitized by Google

ELECTRIC LIGHTING BY MEANS OF CLORIS BAUDET'S BATTERY AND MACHINES.

INCANDESCENCE LIGHTING IN VACUUM.



1° with the No. 4 or 5 non-polarizing Battery,

One Battery of six cells maintains *one* lamp of 4 to 6 candles.

Two Batteries of six cells maintains *two* lamps of 8 to 10 candles.

Three Batteries of six cells maintains *four* lamps of 10 to 12 candles.

And so on, increasing in the same proportions.

N.B.—In this case, the zincs of the cells are entirely immersed, that is to say, from 6 to 6½ inches; each battery can maintain the light during 50 to 60 hours; the cost is 6-tenths of one penny per hour per battery.

If the immersion of the zincs is only ½ to 2¼ inches, and the number of batteries double, the amount of light is trebled and its duration increased to from 300 to 400 hours without recharging the cells, and the cost of maintenance is from 1 *to* 2-*tenths o one penny per hour per battery*. (This result has been proved). This light can be seen every day at any time in our dark room in Paris.

2°—With the Reversible Motor or Dynamo-Electric Machine.

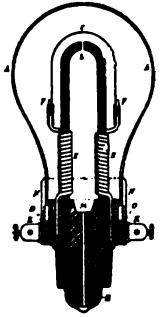
With an expenditure of from 26 to 33 foot pounds per second 1 lamp of 4 to 6 candles is maintained.

,, ,, ,, 40 to 55 ,, ,, for 2 lamps of 4 to 6 arc candles are maintained.

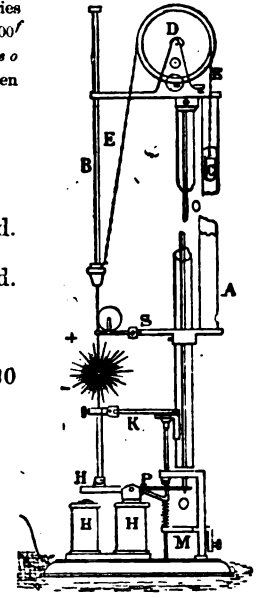
,, ,, ,, 55 to 66 ,, ,, for 3 lamps of 4 to 6 arc candles are maintained.

This work is produced by a single apparatus; the double one producing twice the amount.

By means of THE VOLTAIC ARC sixty non-polarising cells No. 5 produce 500 to 600 candles with an expenditure of about 6d. per hour.



Cloris Baudet's Patent Incandescence Lamp with magnetic suspending.



Cloris Baudet's Patent Photo-Electric Voltaic Arc Lamp.

Our Illustrated pamphlet of June 1882 *forwarded free on application.*

CLORIS BAUDET, 90, RUE SAINT-VICTOR, 90, (Près le Square Monge) PARIS.

Digitized by Google

J. A. BERLY,

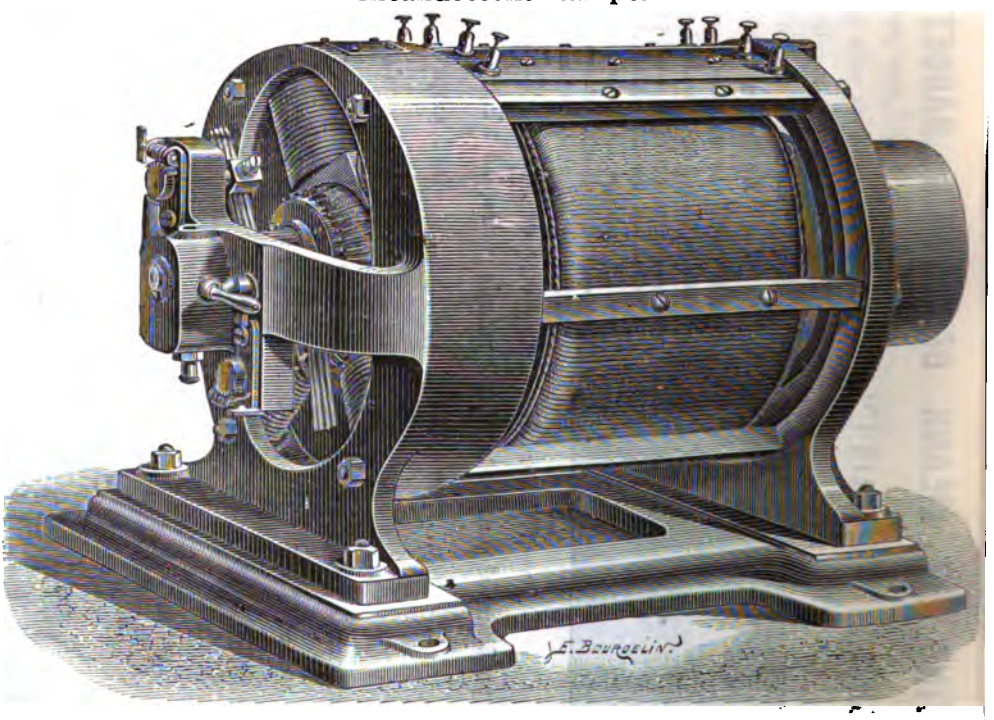
CIVIL AND ELECTRIC LIGHTING ENGINEER,

16, NEW BRIDGE STREET,

LONDON, E.C.

The Gramme Patent Alternating and Self-exciting Dynamo-Electric Machine, as used by the Metropolitan Board of Works for the Lighting of the Thames Embankment and Waterloo Bridge, and also at the "Times" Office, etc., etc.

Sizes from four to thirty-six Arc Lamps, or from twenty-four to 500 Incandescent Lamps.

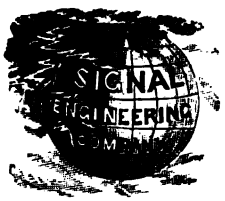


The Gramme Alternating Current Machine is suitable for any system using the Alternating Current, such as the Jablochkoff, Jamin's, "Sun" Lamp, Rapieff, Siemens' Mondos, etc., Arc Lamp, also Swan, Nothomb, Maxim, etc. Incandescent Lamps.

J. A. BERLY, C.E., A.S.T.E., etc.

See also English Section, page . | See also French Section, page .
„ American „ „ . | „ Belgian „ „ .

Digitized by Google



TRADE MARK.

SIGNAL. ENGINEERING COMPANY,

181, HIGH HOLBORN, LONDON, W.C.

PATENTEES & MANUFACTURERS OF

ELECTRIC & PNEUMATIC BELLS,

(Sole Proprietors and Manufacturers of Joel's Patent Pneumatic Bells),

LIGHTNING CONDUCTORS, THIEF DETECTORS

FIRE ALARMS, PRIVATE TELEGRAPH LINES, &c.;

ALSO

PNEUMATIC DESPATCH TUBES, SPEAKING TUBES, AND ALL KINDS OF DOMESTIC SIGNALLING APPARATUS.

ESTIMATES FREE.

"MAGNETIC STEEL"

SPECIAL STEEL FOR MAGNETS & ELECTRICAL PURPOSES.

One of our Departments is specially adapted for the production of our patent Steel Wheels and Axles for collieries, tramways, &c., and we are now manufacturing **2,000** per week. Our patent system of fitting-up Wheels and Axles is simple but effective, and we are enabled to execute orders with promptitude. We undertake to supply all work entrusted to us in a first-class manner, only manufacture the **best** quality of material, and claim the following specialities for our material over any other steel, malleable iron, or other wheels, viz.:—Extra **toughness** or **tenacity, durability,** and **solidity.** As proof of the correctness of above statements we have been awarded, in competition with the world, **GOLD** Medal, Paris, 1878; **GOLD** Medal, Melbourne, 1880; **Special DIPLOMA** and Medal, Sydney, 1879; also Highest Awards at London, Leeds, Manchester, Cornwall, Wrexham, 1874-77.

Over **1,100** different Wheel, Roller and Pedestal patterns in stock, of varying widths of tread, flanges, &c.

We also solicit attention to the following articles, which we are largely supplying in our **Cast Steel.**

Rollers, Pulleys, Frames and Stands.—See our lists of nearly **200** different patterns; possess great durability, lightness, and strength, and add considerably to the life of the steel or other ropes.

Self-oiling Wheels (Patent).—Many thousands now at work, saving at least **50** per cent. of oil or grease. Easily charged or refilled. Reduce friction and wear and tear to a minimum.

Pedestals, Bushes, Cage Guides, Buffer Boxes, Points, Crossings, and other Colliery castings of every description. **Over 1,100** different patterns of above in stock, ready for use on the shortest notice.

New patterns made to suit special requirements, free of charge for quantities.

Steel Axles to suit all classes of haulage. We manufacture a special mild quality of steel suitable for this purpose, and have many **hundreds of thousands** in daily use, giving every satisfaction.

Steel Gearing of all kinds. Machine moulded or from full patterns.

Miscellaneous Steel Castings up to 16,000 lbs. each, to replace expensive wrought-iron and steel forgings and heavy iron castings. Tensile strain of our castings 34 to 40 tons per square inch, as tested by Government. Specially adapted for **Railways, Tramways, Hydraulics,** (press cylinders up to 20 ft. in length).

Quotations, &c. on application.

N.B.—Note the Address, and prove truth of the above by giving our Steel Wheels, &c., a trial.

HADFIELD'S STEEL FOUNDRY COMPANY,

ATTERCLIFFE, SHEFFIELD.

W. A. CARLYLE,

MANUFACTURER OF DYNAMO-ELECTRIC MACHINES

FOR DEPOSITING GOLD, SILVER, NICKEL, COPPER, BRASS, &c.

CYANIDE OF POTASSIUM, NICKEL SALTS, ANODES, &c.

POLISHING LATHES, MATERIALS, &c.

Complete Electro-plating, Electro-typing, & Polishing Outfits supplied,

AND FULL PRACTICAL INSTRUCTIONS GIVEN.

SEND FOR ILLUSTRATED CATALOGUE.

91 & 92, CONSTITUTION HILL, BIRMINGHAM.

Digitized by Google

It is guaranteed that the "**RAILWAY SUPPLIES JOURNAL**" reaches every Principal Director, Official, Shareholder, Contractor and Manufacturer.

THE

RAILWAY SUPPLIES JOURNAL

AND

STORE-KEEPERS' GAZETTE;

Manufacturers, Inventors', and Contractors' Record; and Railway, Shipping and Mining Advertiser, &c.

With which are incorporated the "Railway Gazette" and the "Commercial Gazette."

Principal Editions Published on the 1st and 15th of each Month.

Price 6d. Subscription for a year, including Postage, 14s.

"The "Railway Supplies Journal," with which are incorporated the "RAILWAY GAZETTE" and the "COMMERCIAL GAZETTE" (started in 1872 by Mr. Bass, M. P. for Derby), is specially intended to bring under the notice of Railway Companies, the various inventions, improvements, and supplies demanded by the numerous requirements of the Railway Service; and generally to form a medium of communication between Railway Companies, and those who supply them with materials, goods or appliances.—*Times.*

OFFICE:

8, FURNIVAL'S INN,

LONDON, E.C.

Digitized by Google

DUNCAN BROTHERS,

32, QUEEN VICTORIA STREET,

LONDON, E.C.

Engineers and Contractors,

TATE'S PATENT ELECTRIC APPARATUS

FOR

Closing Valves and Stopping Steam Engines.

RITCHIE'S PATENT TURBINES

SUITABLE FOR DRIVING

DYNAMO MACHINES.

High Speed Shafting

With Long Bearings.

WROUGHT IRON PULLEYS.

BELTING & GEARING.

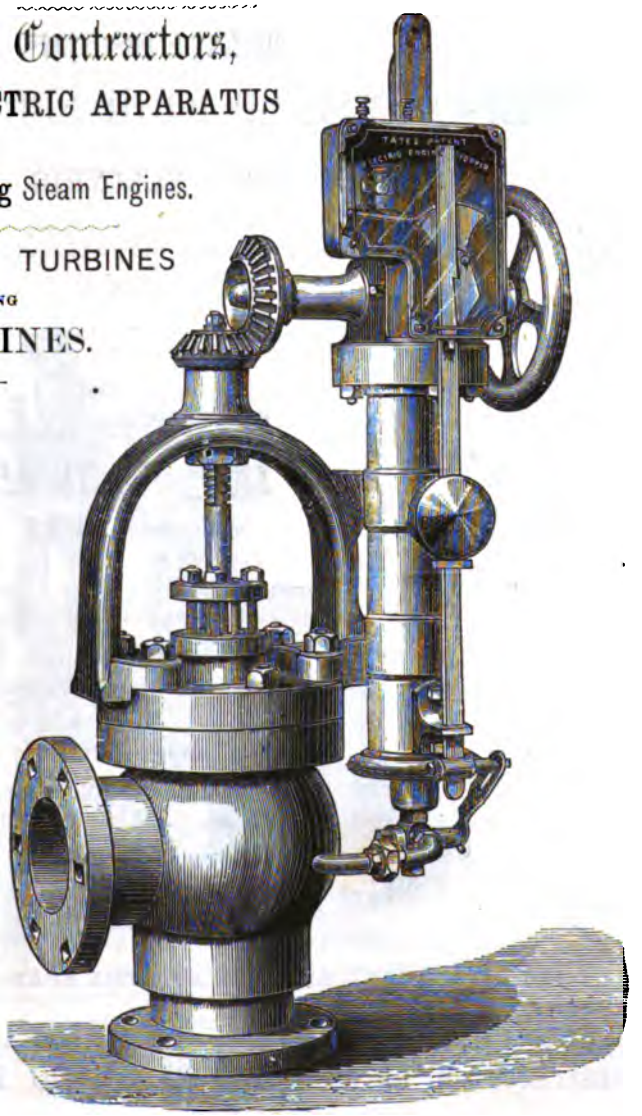
STEAM ENGINES & BOILERS.

Wire Drawing Machinery.

Machine Tools of every description for Wood or Metals.

Wire Covering Machines.

STEEL, FILES, HAMMERS, CHISELS, AND HAND TOOLS.



The above Illustration represents Tate's Patent Electric Stopping Motion, fitted to an ordinary Stop Valve.

ESTIMATES, SPECIFICATIONS, AND PRICE LISTS ON APPLICATION.

Telegraph Address:—DUNCANBROS, London.

DUNCAN BROTHERS,

32, QUEEN VICTORIA STREET, LONDON, E.C.

Digitized by Google

W. H. ALLEN & CO.,

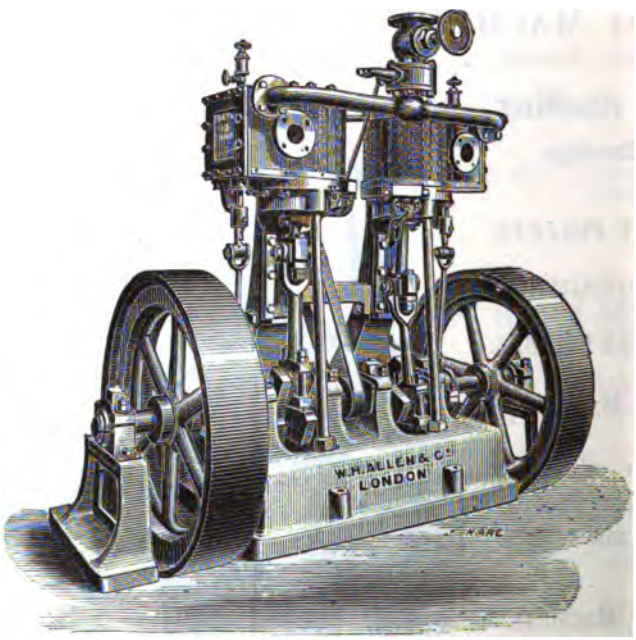
YORK STREET WORKS, LAMBETH, LONDON, S.E.

MAKERS OF

SELF-CONTAINED HIGH SPEED ENGINES;

SUITABLE FOR ELECTRIC LIGHTING.

MADE SPECIALLY FOR USE ON BOARD STEAMERS OR ENCLOSED PLACES WHERE SPACE IS AN OBJECT.



100 H.P. ENGINE AS MADE FOR THE SPANISH GOVERNMENT.

Constructed in all sizes from 25 to 500 H.P., and from 100 to 500 Revolutions per minute.

These Engines are thoroughly Balanced, and contain all the latest Improvements, with Self-Acting Oiling Arrangement.

THE SURFACES ARE MADE VERY LARGE TO ENSURE DURABILITY,

AND THE WHOLE CONSTRUCTED AS PERFECT AS POSSIBLE.

Digitized by Google

W. GROVES,

ELECTRICAL AND TELEGRAPH INSTRUMENT MANUFACTURER,

89, BOLSOVER STREET, PORTLAND PLACE, W.

WHEATSTONE'S A B C TELEGRAPH INSTRUMENTS.

WHEATSTONE'S MAGNETIC COUNTERS.

PROF. HUGHES' INDUCTION BALANCE.

ELECTRICAL TESTING INSTRUMENTS.

A. STROH'S SONOROUS VIBRATION INSTRUMENTS.

PROF. MINCHIN'S ABSOLUTE SINE ELECTROMETER.

ELECTRIC LIGHT APPARATUS.

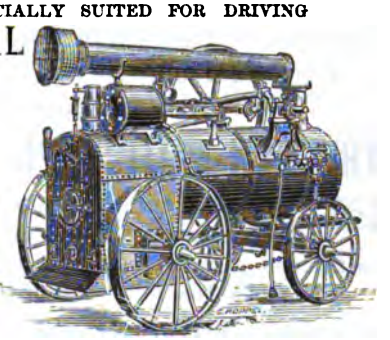
Chronographs. Recorders. Magnetic Clocks.

FIRST PRIZE STEAM ENGINES;

HORIZONTAL VERTICAL PORTABLE AND SEMI-FIXED,
OF THE HIGHEST TYPE AND SPECIALLY SUITED FOR DRIVING

DYNAMO-ELECTRICAL MACHINES,

Fitted with Automatic EXPANSION GEAR which perfectly governs and insures regularity of speed in these ENGINES.



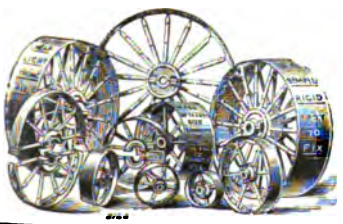
PATENTEES AND SOLE MAKERS OF THE

WROUGHT IRON

"UNIVERSAL"

SPLIT PULLEYS.

THOUSANDS IN USE



Driving all kinds of

MACHINERY.

READING IRON WORKS, LIMITED.

SHAFTING,
COUPLINGS,
PLUMMER BLOCKS,
GEARING,
&c.

CATALOGUES FREE BY POST.

ADDRESS—
READING, ENGLAND.

PATRICK & SON,

ELECTRICIANS,

529, KING'S ROAD, CHELSEA, LONDON, S.W.

DYNAMO MACHINES for LECTURERS, SCIENCE TEACHERS, EXPERIMENTALISTS, and the MEDICAL PROFESSION, FOR LIGHTING ONE LAMP AND UPWARDS.

ELECTRIC MOTORS OF ALL SIZES.

Manufacturers of EVERY DESCRIPTION of ELECTRICAL APPARATUS.

ELECTRIC BELLS, &c., FITTED.

Special Apparatus for New Inventions, &c., Constructed to Order.

Digitized by Google

SHIPPEY BROTHERS & CO.,

Electricians, Engineers and Light Contactors,

13 & 14, KING STREET, CHEAPSIDE, LONDON.

Estimates given for Every Description of Arc, and Incandescent Systems of Electric Lighting, Lamps, Dynamo's, Motors, Batteries, Accumulators, and Electrical Apparatus.

AGENTS FOR—The Simplex Dynamo Electric Machine made in all sizes from 30 guineas.—"The Simplex Machine, can be seen in Working order, and is adapted to work Arc and Incandescent Lamps in combination, warranted to Light and maintain 16/20-Candle power Swan or Edison's Lamps per Horse Power, acknowledged to be the best and Cheapest Machine in the Market.

THE NON-MOTIVE POWER ELECTRIC LIGHT APPARATUS.

☞ Special Attention is called to The "**UNIVERSAL INSTALLATION**" of this system consisting of a 50 cell "**Voltaic Generator,**" for Lighting an Arc Lamp (with name painted on globes), and 6 Incandescent Lamps, Wires and Fittings complete. Price £68 10s. 0d. "cost of future maintainance for £16 16s. 0d. per annum."

This is the only system in existance that requires no Machinery to generate the current and is admirably adapted for Country Shopkeepers, where Gas is unobtainable.

Estimates also given for the Lighting of "Private Houses, Offices, Picture Galleries, Billiard Saloons, Artists Studio's, Conservatories, Ships, Marine Buoys, Railway Carriages, Tram Cars, Mines, &c."

THE STANDARD PATENT WIRE COVERING MACHINES.

THE MORGAN SAFETY MINERS LAMP.

PUNSHON'S & SHIPPEY'S PATENT INSULATED ELECTRIC WIRES.

PATENT EBONITEA BATTERY CELLS.

MISSONNIERS ELECTRIC BURGLAR ALARM AND THIEF CATCHER,

This Apparatus is not only arranged to give an alarm, both inside and outside the Residence, but also detains the Burglar until the arrival of the Police.

SOLE MANUFACTURERS OF

Shippey's Patent Electric Signal Balloons & Parakits

FOR NAVAL, MILITARY, AND EXPLORATION PURPOSES,

"CONCESSIONS GRANTED."

Digitized by Google

BRITISH ELECTRIC LIGHT CO., LIMITED,

HEDDON ST., REGENT ST., LONDON, W.

Gold Medals:—Paris Electrical Exhibition, 1881; and Crystal Palace Electrical Exhibition, 1882.

SOLE PROPRIETORS OF THE GRAMME MACHINE PATENTS.

Contractors for all Systems of Electric Lighting.

ALL DESCRIPTIONS OF ARC & INCANDESCENT LAMPS SUPPLIED.

	£	s.	d.	
BRITISH INCANDESCENT LAMPS, suitable for Domestic purposes, from	0	5	0	Each.
ARC LAMPS... ... ... ,, ...	11	0	0	,
GRAMME MACHINES... ... ... ,, ...	40	0	0	,,

WIRES AND FITTINGS AT LOWEST PRICES.

LEATHER BELTING

FOR ELECTRICAL MACHINES,

Manufactured Specially to ensure Straight and Even Running.

HEPBURN & GALE,

TANNERS & MANUFACTURERS OF ALL KINDS OF

LEATHER BELTING, & LEATHER FOR MECHANICAL PURPOSES,

HOSE PIPES, &c.

ADHESIVE BELTING COMPOUND

For Preserving Leather Belting and increasing its Gripping Power.

239, LONG LANE, SOUTHWARK, S.E.

SHEATH BROTHERS,

India Rubber, Gutta Percha, & General Manufacturers,

89, CITY ROAD, LONDON.

MANUFACTURERS OF

MOHAIR AND SILK BRAIDED TUBING FOR THE GOWER BELL TELEPHONE, AND SPEAKING TUBES.

TURNERS OF MOUTHPIECES, WHISTLES, PUSHES, &c.

Ebonite Sheets and Rod Insulated Telegraph Wire for all Electrical Purposes.

Digitized by Google

J. A. BERLY,

CIVIL AND ELECTRIC LIGHTING ENGINEER,

16, NEW BRIDGE STREET,

LONDON, E.C.

Publisher of J. A. BERLY'S British, American and Continental ELECTRICAL DIRECTORY.

English Correspondent of "l'Electricien" of Paris, and of the "Electrician" of New York.

Patents (Engineering and Electrical) taken out, worked out and negotiated, both in England and abroad.

Sole Agent in England for the Compagnie Générale des Horloges Pneumatiques of Paris. (Capital, 5,000,000 francs). The Nothomb Incandescent Lamp, 10 to 300 Candle-power.

DEVÈS PATENT ELECTRO-MOTOR.
MONDOS PATENT ARC LAMP.
HAJNIS' (of Prague) PATENT ARC LAMP.
CUMMING PATENT PERIPHERY CONTACT.

N. DE KABATH'S PATENT ACCUMULATOR.

ETIENNE PATENT TELEGRAPHIC SYSTEM.

(Saving of Time, 50 per cent). (Saving of Paper-band, 75 per cent).

BERLY AND HULETT'S PATENT SLIDING CONTACT SUSPENSION,

Applicable to every system of Electric Lighting

J. A. BERLY, C.E., A.S.T.E., etc.,
16, NEW BRIDGE STREET, LONDON, E.C.

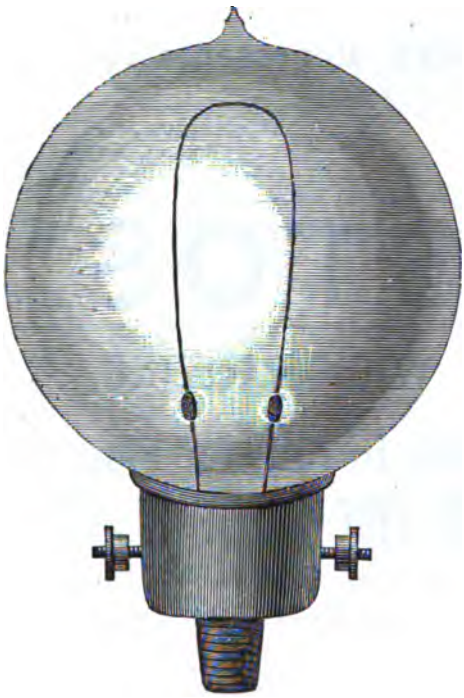
See also English Section, page .
" American " " .
See also French Section, page .
" Belgian " " .

Digitized by Google

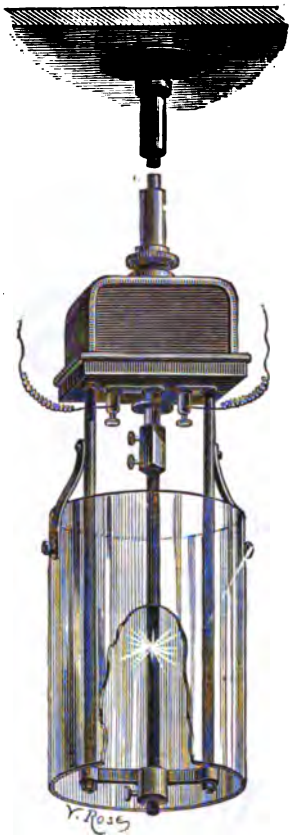
J. A. BERLY, Civil and Electric Lighting Engineer,

16, NEW BRIDGE STREET, LONDON, E.C.

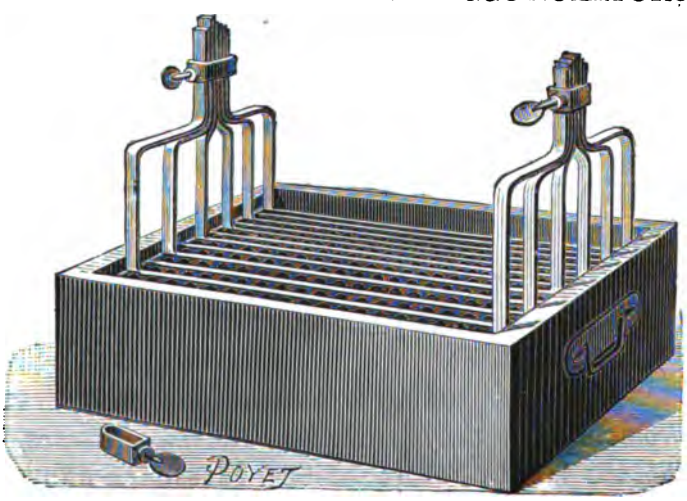
NOTHOMB'S PATENT INCANDESCENT LAMP.



MONDOS'S PATENT ARC LAMP.



N. DE KABATH'S PATENT ACCUMULATORS.



J. A. BERLY, C.E., A.S.T.E., etc., 16, New Bridge Street, London, E.C.

See also English Section, page .
,, American ,, ,, .
See also French Section, page .
,, Belgian ,, ,, .

Digitized by Google

DOLBEAR TELEPHONE.

A complete and independent SYSTEM OF TELEPHONY.

SILVER MEDAL, PARIS, 1881. GOLD MEDAL, LONDON, 1882.

H. C. BUCK, Foreign Representative.

ADDRESS AND OFFICES:—

No. 60, Queen Victoria St., London, E.C., England.

No. 70, Washington St., Boston, Mass., U. S. A.

ASBESTOS.

ROPE PACKING, WICK PACKING,

AND

MILLBOARD SHEATHING, in rolls for Floorings.

FIRE-PROOF PAINTS AND FIRE-PROOF PLASTER,

For Ceilings, Walls, Beams, Posts, Girders, &c. &c.

AND ALL OTHER FORMS OF ASBESTOS MANUFACTURES.

Full Particulars and Samples for Experiments sent on application to

WITTY & WYATT,

BILLITER HOUSE, BILLITER ST., LONDON, E.C.

Sole European and Colonial Agents for

H. W. JOHNS MANUFACTURING COMPANY,

WAREHOUSES—1, FENCHURCH AVENUE, LONDON, E.C.

A. E. CONTI,

(From Messrs. Elliott Bros.)

ELECTRICAL TEST INSTRUMENTS MAKER.

RHEOMETERS, GALVANOMETERS, ELECTROMETERS, WHEATSTONE'S BALANCES.

Resistance Boxes, Condensers, etc. **Induction Coils and Induction Balances.**

KEYS AND REVERSERS OF HIGH INSULATION FOR ELECTROSTATIC TESTING

Electromotors for driving Sewing Machines, Lathes, etc.

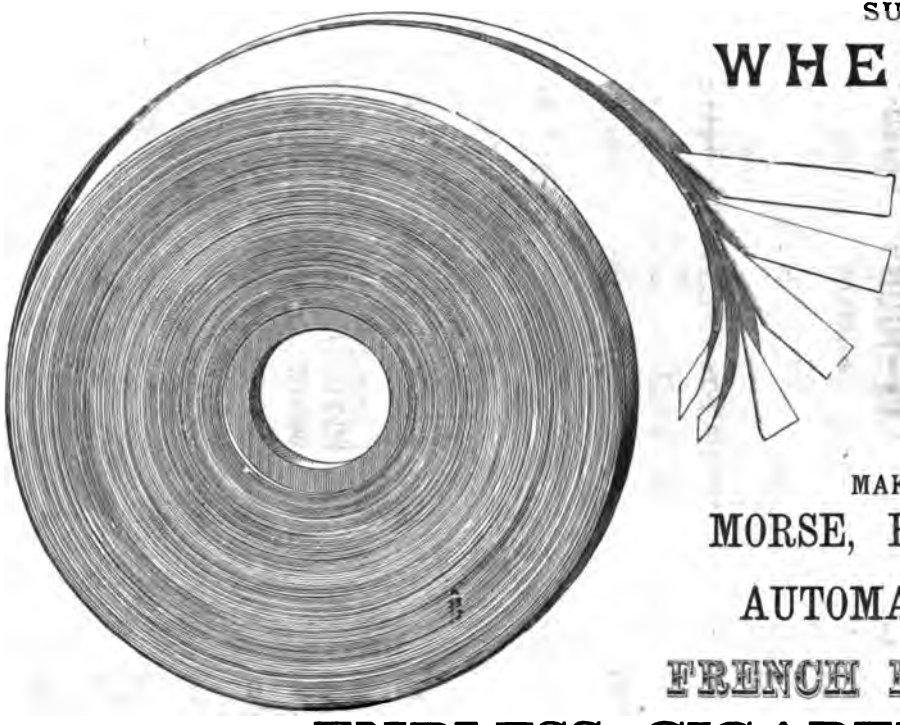
SPECIAL INSTRUMENTS for ELECTRIC LIGHT, TELEGRAPH AND TELEPHONE COMPANIES, made from DRAWINGS.

EXPERIMENTAL WORK FOR INVENTORS CAREFULLY EXECUTED.

26a, SMITH STREET, NORTHAMPTON SQUARE, LONDON, E.C.

Digitized by Google

THE CHALFONT ENDLESS TELEGRAPHIC PAPER COMPANY.



SUPPLY A SPECIALLY-PREPARED

WHEATSTONE PAPER,

FROM ONE TO SIX FOLD.

So that Six Slips can be PERFORATED Simultaneously.

THIS PAPER REQUIRES NO OILING.

MAKERS AND EXPORTERS OF PAPER FOR

MORSE, HUGHES, AND OTHER SYSTEMS,

AND

AUTOMATIC SYSTEM OF TELEGRAPHY.

FRENCH ENDLESS **CARTRIDGE PAPER.**

ENDLESS CIGARETTE PAPERS.

Tramway Tickets Printed on the Endless Reel and Numbered up to One Million.

Offices:—114 & 115, GREAT SAFFRON HILL, LONDON, E.C.

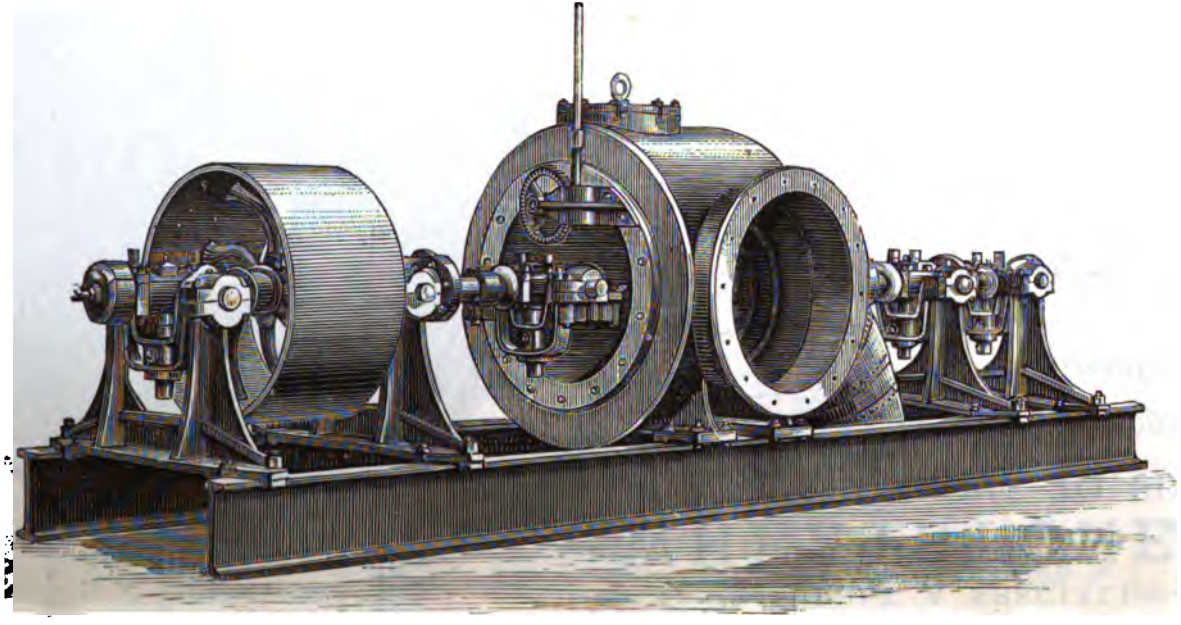
Digitized by Google

PATENT "ELECTRIC LIGHT" TURBINE

OR

PATENT "TRENT" TURBINE,

WITH HORIZONTAL SHAFT.





Turbine, with Vertical Shaft.

The standard pattern is not so elaborate as the above; which was specially designed for Export to Mexico.

CHARLES L. HETT, Ancholme Iron Works, BRIGG, Lincolnshire.

Digitized by Google

Awarded the ONLY Medal for Core at the Crystal Palace Electrical Exhibition, 1882.

W. T. HENLEY'S TELEGRAPH WORKS CO., LIMITED.

Telegraph Engineers and Contractors.

MANUFACTURERS OF

TELEGRAPH CABLES, Submarine, Underground and Aerial.

TORPEDO CABLES.

TELEPHONE CABLES.

ELECTRIC LIGHT LEADS.

And every other description of Cables and Core.

SOLE MAKERS OF

HENLEY'S PATENT OZOKERITED CORE,

Which is unaffected by extremes of heat and cold and is recognized by many well-known Electricians, and Telegraph Engineers as superior to all other Core.

IRON AND WOOD TROUGHS

FOR UNDERGROUND,

TELEGRAPH LINES.

Telegraph Wire, Fencing Wire,
Wire Rope, &c., to any Specification.

OFFICES:

8, DRAPERS' GARDENS, LONDON, E.C.

WORKS: NORTH WOOLWICH.

Digitized by Google

GARNHAM & COMPY.,

Electricians and Telegraphic Engineers,

SOLE MANUFACTURERS OF

HARPER'S PATENT INTERLOCKING BLOCK SIGNALING TELEGRAPHS,

Also in use on the Lancashire and Yorkshire, London, Brighton and South Coast, London and North Western, Midland, Great Western, Dublin, Wicklow and Wexford, and Sligo, Leitrim and Northern Counties Railways, also

STROUDLEY'S PATENT TRAIN COMMUNICATION.

CONTRACTORS FOR EVERY DESCRIPTION OF

ELECTRICAL & TELEGRAPHIC ENGINEERING.

WORKS:—SASH COURT, WILSON STREET, FINSBURY, LONDON, E.C.

F. L. WILLARD,

25, RICHMOND STREET, ST. LUKE'S,

LONDON, E.C.,

ELECTRIC LIGHT ENGINEER & CONTRACTOR.

Wholesale Manufacturer of

Incandescent and Arc Lamps, Dynamo-Electric Machines, Switches, Relays, Cut-outs, &c.

Estimates given for Temporary or Permanent Lighting on either the Arc or Incandescent Systems.

A. J. JARMAN, ELECTRICAL ENGINEER,

MANUFACTURER OF THE "FARADAY" PATENT DYNAMO-ELECTRIC MACHINE AND JARMAN'S PATENT ARC ELECTRIC LAMP.

Mr. Jarman. Rutland Brewery, Ketton, near Stamford, *December 14th*, 1882.

Dear Sir,—I have great pleasure in stating that your dynamo works very satisfactorily indeed. At 1,200 revolutions per minute it lights up twelve incandescent lamps well (Edison's) at my house, which is about a quarter of a mile from the dynamo, which is driven by a water-wheel. I intend increasing the size of the water-wheel next year, when I believe your little Dynamo will work twenty Edison incandescent lamps at 1,500 revolutions. Yours truly, T. C. MOLESWORTH, Jun.

Mr. A. J. Jarman. 345, Mile End Road, London, *December 16th*, 1882.

Dear Sir,—After having one of your Dynamo Electric Machines in use for several months, working both arc and incandescent lamps, I am pleased to testify as to its being a thoroughly reliable and powerful machine, and taking but small engine power. I am very pleased with its performance. I do think that such a reliable Dynamo ought to take the lead in the market, because it meets what the public have long desired, *i.e.*, cheapness, efficiency and reliability. Truly yours, F. G. CHAPMAN.

Works—25, RICHMOND ST., BATH ST., OLD ST., LONDON, E.C.

Digitized by Google

PATENTS.

W. P. THOMPSON & BOULT,

Fellows of the Institute of Patent Agents, Civil and Mechanical Engineers, and International Patent Agents,

323, HIGH HOLBORN, LONDON, W.C.

Liverpool.—W. P. THOMPSON & Co., 6, Lord Street.

Transact all business connected with Electrical and General Patents. Trade Marks and Designs. Personal attention. Moderate Charges. Searches made. Oppositions conducted. Manual of Fees and Procedure gratis. Patent Law in Plain English, 6d. Foreign Laws, 2s. 6d.

"A very useful digest."—*Engineer.*

"It is the handiest synopsis of the subject that we have seen, and we commend it to the attention of every intending Patentee."—*Iron.*

Telegraphic Address:—"BOULT," LONDON.

ESTABLISHED 1859.

London Address:—ST. BENET'S CHAMBERS, 1, FENCHURCH STREET, E.C.



India Rubber and Leather Works:—
32, ANGEL STREET.

Engineering and Electric Works:—
NEW STATION ROAD,
SHEFFIELD.



TASKER, SONS & CO.,

Manufacturers of Mechanical Articles, in

INDIA RUBBER, GUTTA PERCHA, AND LEATHER;

LEATHER STRAPPING,

SPECIALLY SELECTED & MACHINE STRETCHED FOR DRIVING ELECTRIC MACHINES.

FIRE HOSE, BUCKETS, HYDRAULIC RAM AND CUP LEATHERS, &c., &c.

PRICE 5s.

THE ELECTRIC LIGHTING ACT, 1882,

AND

ACTS INCORPORATED THEREWITH,

TOGETHER WITH THE

Rules of the Board of Trade under the Act, with Notes, &c.,

BY

WILLIAM CUNNINGHAM GLEN & ALEXANDER GLEN, M.A., LL.B., Cantab.,

Barristers-at-Law.

KNIGHT & CO.,

90, FLEET STREET, LONDON, E.C.

Digitized by Google

JAMES PEARSON,

WHITTINGTON MOOR POTTERIES,
Near CHESTERFIELD.







Manufacturer of Salt or Dipped Stoneware, warranted to be Electrically perfect, and to resist the strongest acids.

BATTERY JARS, INSULATORS, TROUGHS, CAPS, &c.

London Sample Rooms:—20, BARTLETT'S BUILDINGS, HOLBORN CIRCUS, E.C.

WEBB & SON,

LEATHER MACHINE BANDS.

Tanners, Curriers, Fellmongers,
Glove & Gaiter Leather Dressers,
LEATHER & WOOL
MERCHANTS.

FIRE
BUCKETS
AND HOSE.

12 FIRST-CLASS MEDALS AWARDED.

MANUFACTURERS OF

COMBS TANNERY, STOWMARKET.

PRICE LISTS AND TERMS ON APPLICATION.

THE ECONOMIC ELECTRIC LIGHT AND POWER CO.,

Offices: CROWN BUILDINGS, 79, QUEEN STREET,
LONDON, E.C.

ELECTRIC LIGHT AND POWER CONTRACTORS.

ALL KINDS OF ELECTRICAL FITTINGS, CARBONS, CABLE, WIRE, SWITCHES, SAFETY FUSES,
CALL ALARMS, AND
FIRE BELLS Fitted on the most Approved and Economic Systems.

Estimates given for all kinds of Electric Work and Appliances on application.

J. GLEW, Manager. **W. DONALD, Secretary.**

Digitized by Google

FIG.6.



W. M. FOXCROFT,

Telegraph Case Manufacturer,

36, PERCIVAL STREET, CLERKENWELL, E.C.

THE CHEAPEST HOUSE IN THE TRADE FOR THE MANUFACTURE OF TELEGRAPHIC CABINET WORK, BY HAND AND MACHINERY.

PRIZE MEDAL INTERNATIONAL ELECTRICAL EXHIBITION, PARIS 1881.

The ONLY MEDAL Awarded for CABINET WORK.

FIG.4

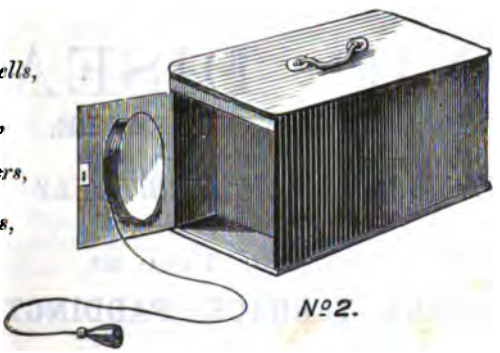


G. C. LEWIS & SON,

Electric Bell Fitters, &c.,

Office: 1A, LOWNDES TERRACE, KNIGHTSBRIDGE, LONDON, S.W.

Improved Electric Bells, Indicators, Pushes, Pulls, Alarm Triggers, Batteries and Boxes,



Insulated Wires, and all accessories for Fixing, Wholesale and Retail.

Makers of Improved Portable Electric Bells for Invalids, &c.—These Bells will be found greatly superior to any at present in the Market; they are made of 2 Sizes, with well made cases, in mahogany or oak, highly polished and fitted with handsome brass handles and spring catches—each Size being fitted with a 2 CELL BATTERY, and flexible Silk Cord of Extra Quality. Prices No. 1, 35/-; No. 2, 42/-.

Electric Bell work of every description carried out in Town or Country, estimates free. Illustrated Price Lists with instructions for fixing, sent Post free for 1d. Stamp. Trade terms on receipt of business card.

PRIZE MEDAL AWARDED—INTERNATIONAL ELECTRIC EXHIBITION, CRYSTAL PALACE, 1882.

Samples on View at Electric and Gas Exhibition, Crystal Palace, 1883. No. 207.

H. G. GOODWIN,

PATTERN MAKER AND TURNER,

A LARGE STOCK OF WELL-SEASONED WOOD.

AN EFFICIENT STAFF OF WORKMEN.

MACHINERY WITH STEAM POWER.

AND EVERY FACILITY FOR EXECUTING ALL WORK QUICKLY AT

42 & 43, KIRBY ST., HATTON GARDEN, E.C.

Digitized by Google

A. MARTIN,

IVORY AND WOOD TURNER,

54, PERCIVAL STREET, CLERKENWELL, E.C.

MANUFACTURER OF

ELECTRIC BELL PUSHES AND SPEAKING TUBE FITTINGS,

SWITCH BOARDS, COIL REELS, &c.

SMALL TURNED PARTS of every description in EBONITE, IVORY, BONE, HORN and WOOD,
FOR TELEGRAPH, TELEPHONE AND ELECTRIC LIGHT ENGINEERS.
A large assortment of Electric Bell Pushes, fitted with Springs and Platinum Contacts, kept in Stock.
Special Attention given to Drawings and New Designs.

GRIGG'S

ELECTRO-MAGNETIC THERAPEUTIC ESTABLISHMENT

AND

SANATORIUM,

FOR THE CURE OF

CHRONIC DISEASES,

Believed to be INCURABLE.

MANY LIVING WITNESSES LIVES POSITIVELY SAVED BY IT.

Testimonials Free at

34, EASTBOURNE TERRACE, PADDINGTON, W.

Mr. GRIGG, Medical Electrician,

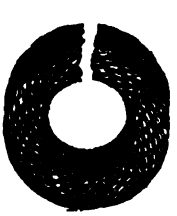
LATIMORE HOUSE,

MAIDENHEAD.

THE

INDESTRUCTIDLE PACKING COMPANY,

EAST INDIA DOCK ROAD, LONDON, E.



MANUFACTURERS OF

GIRDWOOD'S PATENT METAL PACKING.

SUPPLIED IN LENGTHS OR RINGS.

IN ORDERING, SEND DIAMETER OF ROD AND GLAND, AND NUMBER OF RINGS REQUIRED.

Digitized by Google

J. R. BRAILSFORD,

41, TRINITY SQUARE, E.C.

PATENT ELECTRIC TIDAL AND WATER LEVEL INDICATORS,

Registers and Alarms, for Indicating and Registering the Water Level in Distant Tide-ways, Reservoirs, &c, Adopted by the Hon. the Conservators of the River Thames.

PRIZE MEDAL, INTERNATIONAL EXHIBITION CRYSTAL PALACE, 1881-2.

Patent "A.B.C." Electric Bell Indicator, on an entirely New System, Cheaper than the old crank method. A 10 roomed Indicator and Bell contained, in case 15 in. long by 3 in. square, especially Suited for Domestic Use.

ELECTRIC RAIN-FALL RECORDER.

THE

METROPOLITAN,

A JOURNAL OF

LOCAL SELF-GOVERNMENT AND POOR-LAW ADMINISTRATION;

AN OFFICIAL ADVERTISER,

And Record of Public Health, School Board Work, Gas and Water Supply, Provident Institutions and Sanitary Science.

ESTABLISHED 1872.

Circulating amongst all CORPORATIONS, *Vestries, District Boards, Guardian Boards, and other* LOCAL AUTHORITIES *throughout the Kingdom.*

PUBLISHED EVERY SATURDAY

PRICE TWOPENCE.

The *Metropolitan* devotes special attention to the subject of **Electric Lighting** Almost every known system has been fully described and illustrated in its columns Instances of the practical application of this mode of Illumination are duly recorded and every development of the Art and Science of Electric Lighting, chronicled and reviewed.

*** *The attention of Electric Lighting Companies and others is called to the METROPOLITAN, as an admirable means of Advertising.*

For further particulars apply to

MR. GEORGE ROGERS,

DORSET HOUSE, SALISBURY SQUARE, FLEET STREET,

LONDON, E.C.

GEORGE BEECH,

Telegraph Instrument Case Manufacturer,

BY STEAM POWER,

For all the principal Railways in the United Kingdom, and on the Continent.

Railway and Telegraph Engineers supplied with Every Description of Telegraph Instrument Cases, Single Needles, Block Instruments, Telephones, Switches, &c.

The Material and Workmanship of the First Quality Guaranteed.

ESTABLISHED 1872.

14, NORFOLK ROAD, DALSTON LANE, LONDON.

FACTORY: 109, DALSTON LANE.

Digitized by Google

REID BROTHERS,

12, WHARF ROAD, CITY ROAD,

LONDON, N.

TELEGRAPH ENGINEERS AND CONTRACTORS

FOR THE SUPPLYING AND LAYING DOWN OF

UNDERGROUND WIRES BOTH FOR TELEGRAPHS AND ELECTRIC LIGHTING.

PNEUMATIC TUBES FITTED WITH ENGINES AND PUMPS COMPLETE.

PATENT TELEPHONIC WIRES,

TO PREVENT INDUCTION BOTH FOR

UNDERGROUND & OVERHEAD LINES.

MANUFACTURERS OF

Submarine Cables, Wire Instruments, Iron Poles, Batteries, Insulators, and Stores of every description.

Contracts entered into for the supply, construction, and maintenance of Telegraph Lines, and Estimates given for all kinds of Electrical Work.

Digitized by Google

SECOND EDITION.

A FEW PRACTICAL REMARKS ON THE FORMATION AND USE OF

N. DE KABATH'S
PATENT ELECTRIC ACCUMULATORS.

INDEX.

Introduction.
1. Charging of Accumulators.
2. Accessory Apparatus.
3. Discharging Accumulator.
4. Installation of Accumulator.
5. Various Applicatons for Accumulators
Appendix.

All Rights of Translation and Reproduction reserved.

Price SIXPENCE.

London: WILLIAM DAWSON & SONS, 121, CANNON STREET, E.C.

O. & F. H. VARLEY,

Telegraph Engineers,

MILDMAY PARK WORKS, LONDON.

MAKERS OF ALL

ELECTRICAL APPLIANCES FOR ELECTRIC LIGHT,

TELEGRAPHS,

Instrument Stores, Testing Instruments,

SWITCHES, INSTRUMENTS OF PRECISION,

ACCUMULATORS and Electric SUPPLY METERS.

CONTRACTORS for Every Description of ELECTRIC CONSTRUCTION, &c.

THE ELECTRIC AND MAGNETIC APPLIANCE STORES.

Manufacturing and Consulting Electricians and Telegraph Contractors,

OFFICE: 30, LIVERPOOL STREET, CITY.

WORKS: EAGLE WHARF ROAD.

Wholesale and Retail Electrical Apparatus of every description both English and Foreign.

Special Department for all Domestic and Household Appliances.

Electric Bells, Indicators, and Magnetic Medical Appliances fitted to Baths, Professional Consulting Rooms, &c. Estimates Free.

Only Experienced Workmen Sent to All Parts of the United Kingdom.

WHOLESALE & RETAIL LISTS, Post Free. J. HINTZE, General Manager.

Digitized by Google

A. APPS & CO.,

433, STRAND, LONDON,

TELEGRAPH AND MINING ENGINEERS, ELECTRICIANS & CONTRACTORS

To Her Majesty's War Department, Admiralty, &c., and the principal English Colonial Governments;
The United States Government War Department;
The German, Russian and Turkish Governments, &c., &c.

PRIZE MEDALS, LONDON, 1872; BRUSSELS, 1876; MELBOURNE, 1881; SILVER MEDAL, PARIS, 1881.

BAGOT'S Patent Colliery Signals, Vinery Temperature Regulators, Indicators for Cargoes and for Cool Chambers for Meat, &c.

BAGOT'S Patent Fire Alarm System, Burglar Alarms, &c.

CABLES, Submarine, Subterranean, Ærial, and for Telephone Circuits.

LEADS, for Electric Light and Power Currents.

TEST BOXES, Cuts Out, and special Regulators for various Circuits.

APPS' Patented Induction Coils.

APPS' Improved Current Meters, Ohm, Ampïre, Volt, Coulomb, &c.

ELECTRO-MAGNETIC & ELECTRO-STATIC SYSTEMS OF UNITS, Instruments and Apparatus for

PHOTOMETERS.

TELEPHONE APPARATUS, for Exchanges, &c.

BELLS, Electric, Pneumatic, Alarum, Vibrating, Single Stroke, Tuned, and of various sizes.

PUSHES FOR BELLS, various designs of.

TELEGRAPH INSTRUMENTS, Block, Needle, Morse, &c.

BATTERIES, Nitric Acid, Leclanchë, &c.

ACCUMULATOR Batteries, various.

MOTORS, Electric, for Sewing Machines, Organ Bellows, Ventilators, Cranes, Drilling Machines, Tramways, Boats, Steering of Ships, &c.

DYNAMO Electric Machines, of improved construction.

LAMPS, Electric, Incandescent, and Arc.

CARBONS, of all sizes.

TELEGRAPH WIRE,—Silk and Cotton Covered Wires of Copper, German Silver and Platinum—Silver Alloy, &c.

PATENTS FOR INVENTIONS—Models made.

TECHNICAL ADVICE as to the utility of Electrical Inventions.

SURVEYING, Astronomical and Nautical Instruments made and repaired.

MATHEMATICAL and Optical Instruments and Apparatus of the most approved patterns.

COAL MINES examined and valued.

Digitized by Google

ELECTRICAL TRADING COMPANY,

LIMITED,

2, VICTORIA MANSIONS,

WESTMINSTER, S.W.

BOYS' PATENT METERS,

COMPRISING:

Boys' Patent Engine Power Meter.

Boys' Patent Electric Current Meter.

Boys' Patent Electric Energy Meter.

Patent Electric Cables and Leads.

CONDENSERS.

ELECTRICAL STORES, AND APPARATUS OF ALL DESCRIPTIONS SUPPLIED.

Digitized by Google

F. E. BECKER & Co.,

MANUFACTURERS AND IMPORTERS

OF

ELECTRICAL & SCIENTIFIC APPARATUS

SPECIALITIES:

Electric Bells, Indicators,

Batteries of every description,

Varnum and Crookes' Tubes,

Coils, Terminals, Carbons,

Wire, &c.

At very Low Prices.

34, MAIDEN LANE, COVENT GARDEN,

LONDON, W.C.

Digitized by Google

J. A. BERLY'S

AMERICAN

ELECTRICAL DIRECTORY.

Digitized by Google

The CUMMING (Periphery-Contact) TELEGRAPH KEY.

Telegraphers will find their labour reduced one-half by this close contact, and Companies should not overlook its economy by the numerous contact points.

Size of Ordinary • • • • • • • • • Wire Point Contact.
Size of CUMMING ..... Contact.

Rapidity of latter three times as great as old form.

These Disc Electrodes are applicable to all Electrical Machinery, AND BEING AN IMPROVEMENT, CONTROL OTHER PATENTS, such as those on Polechangers, Relays, Repeaters, Transmitters, Alarms, Clocks, Telephones, etc.

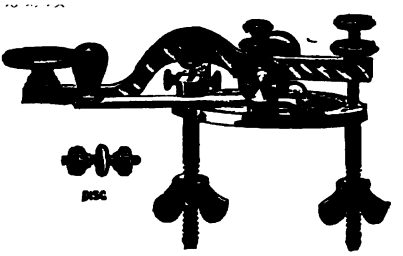
THE INVENTION



Is two disc electrodes or wheels used for contact points, set at right angles, that touch on each Periphery, or rim, so as to attain the smallest surface of contact, a needle point dot, forming thereby a PERFECT CONTACT, which will not stick under the most intense battery, when screwed down to the least lever play.

Patented 1882, in U.S., CANADA, FRANCE, GERMANY, and GREAT BRITAIN.

EXFOSITION AWARDS: PARIS, LONDON, ATLANTA GEORGIA, CINCINNATI, OHIO.
AND GOLD MEDAL FROM ACADEMIE NATIONALE DE PARIS.



SAMPLE KEY SENT POST-PAID ON RECEIPT OF PRICE.

Western Union Pattern, by mail, Registered, $5.00. Legless, Top Connection, $5.50.

OFFICIAL REPORT OF THE OHIO MECHANIC'S INSTITUTE ON THE CUMMING PERIPHERY-CONTACT DISC ELECTRODES, AS PROVEN BY TELEGRAPH KEY.

Meeting of December 1st, 1882.

The following Report on the "CUMMING PERIPHERY CONTACT"* was presented and read:

REPORT.

"CINCINNATI, O., *November 29th*, 1882.

"The Examining Board appointed to investigate the merits of the Cumming Periphery Contact report as follows:

"In this device, as applied to the telegraph key, the electrodes consist of two rollers or disks combined with the lever and the base respectively, with their planes at right angles to each other, these rollers having peripheral contact and serving as the hammer and anvil. The rim of each disk consists of a platinum wire; the surface of contact being thus reduced to a minimum, while it is impossible for the electrodes to pass each other.

"We decided that *a severe practical test* would best serve to determine the value of the invention; the key given to us for examination was accordingly placed on duty *in the Western Union Telegraph office*, in this city, June 17th, 1882, *on a press circuit working steadily from 8 A. M. to 2 A. M. every day.*

"The testimony of operators handling the key daily is without exception favorable to it, on account of its easy motion and free from sticking. It has never, to our knowledge, been taken from its bearings for the purpose of improving its efficiency, which has continued to be satisfactory to the present time.

"We are led by these facts to conclude that this key is superior to the ordinary telegraph key, and that its superiority consists in the nature of the contact made by the peripheries of the revolving disks. This device may also be used with advantage in place of the ordinary contact points, in other electrical instruments, where a circuit is made and broken.

"We recommend the award of the Medal of the Ohio Mechanics' Institute, to George Cumming, of New York, Recognition of his invention, as an important advance in the construction of electrical instruments.—Signed S. M. DUNLAP, A. T. GOULD, C. E. JONES, W. C. MCMEEKIN, EDMOND OSMOND."

This report was adopted by the Department; and the award of the medal, as recommended by the Examining Board, was confirmed.

* Covered by patents, United States, Nos. 256,645 and 256,646 of April 18th, 1882; French, 147,289 and 5,598, April 19th, 1882; German, 19,646, Oct. 12th, 1882; British, 872, August 11th, 1882. Issued to George Cumming and C. M. Brinkerhoff, of 219 E. 18th St., New York City, 10 awards since Nov. 1881. Send for illustrated descriptive circular.

EXTRACT FROM THE OFFICIAL REPORT OF THE ATLANTA INTERNATIONAL COTTON EXPOSITION OF 1881. PAGE 433.

The Cumming Periphery Contact Disc Electrodes, produce a more delicate, rapid, and correct transmission than any other method known. Recommended for an award.

Illustrated Descriptive Circular sent free to any Address.

CUMMING & BRINKERHOFF,

219, EAST 18TH STREET, NEW YORK CITY.

L. G. TILLOTSON & CO., GENERAL AGENTS, Nos. 5 & 7, Dey Street, N.Y.

Digitized by Google

AMERICAN CLASSIFIED TRADES.

Acid Manufacturers.

F.—Acides (Fab. de).
G.—Säure-Fabrikanten.

Fairfield Chemical Works, 159 Front st, N. Y.

Agencies for the Sale of Patents.

F.—Brevets et Marques de fabrique (Agents de).
G.—Agenten zum Registriren der Patente, &c.

Chamberlin — 735 B'way, N. Y.
Globe Patent Agency, 34 Park row, N. Y.
Inventors Institute, 28 Cooper Union st, N. Y.
Knudson Adolphus A. 39 Nassau st, N. Y.
Manhatton Agency, 733 B'way, N. Y.
Patterson Jno. M. 91 Grant st, Pitts. Pa. N. Y.

Anti-Friction Metal Makers.

See Babbit Metal Makers.

Asbestos and Asbestos Materials Manufacturers.

F.—Amiante (Fab. d').
G.—Asbest-Fabrikanten.

Asbestos Packing Co. 169 Congress st, Boston, Mass.
Backus J. 446 Cherry st, Phila.
Boyd J. 428 Market, Phila.
Chalmers Spence Co. 23 John & ft. E. 9th st, N. Y.
Chalmers, Spence & Co. 10 Cortland st, Phila, Pa.
Gilmour R. M. 82 John st, Phila.
Johns H. W. Mfg. Co. 87 Maiden lane, Phila.
Pyrolusite Manganese Co. 54 Cliff st, N.Y. Woodward, Esq. Secretary
Reed J. L. 416 Arch, Phila.

Assayers.

F.—Essayeurs.
G.—Edelmetall-Schmelzer.

Berge J. & H. 191 G'wich and 95 John sts, N. Y.
Eimer & Amend, 205, 207, 209 & 211 3rd av. N. Y.
Hamilton Walter, r 120 William st, N. Y.
Ledoux and Reckitts, 10 Cedar. st, P. de. P. Ricketts, E. M. Ph. D.; A. R. Ledoux A. M. Ph. D. N. Y.
Lelong L. & Brother, South West Corner, Halsey and Marshall sts, Newark, N.J.

Automatic Electric-Signalling Apparatus Makers.

F.—
G.—

Shuey W. H. Room 30, Cooper Union, N. Y.

Babbit Metal Makers.

F.—Metal Anti-Friction.
G.—Anti-Friction-Metall-Fabrikanten.

Conrad & Murray, 30th and Chestnut st. Phila. Pa.
Garratt Wm. I. 138 Fremont, San Francisco, Cal.
Kruegar L. 515 Commercial st, San Francisco, Cal.
Monow & Strong, 117 First st, San Francisco, Cal.
Quincy John W. & Co. 98 William st, N. Y.
Salgee Oliver, 77 Noble st, Greenpoint, Brooklyn, E.D.
Selby Smelting & Lead Co. 416 Montgomery, San Francisco, Cal.
Weed & Kingwell, 125 First st, San Francisco, Cal.

Balance Makers.

F.—Balances.
G.—Waagen.

Cullen F. 59 S. 4 Philadelphia.
Jones C. E. Bros. 51 W. 5 Cincinnati, Ohio.
Riehl & Hasse, corner Race & Longworth, Cincinnati, Ohio

Battery Manufacturers.

F.—Piles Electriques (Fab. de).
G.—Electrische Batterien.

Ahlstrom O. G. 162 William st, N. Y.
ANSONIA BRASS & COPPER CO. 19 & 21 Cliff st, N.Y. *See index to advertisers.*
Bahr & Zahn, 108 Liberty st, N. Y.
Boston Electric Co. 550 Washington st, Boston
Bunnel J. H. & Co. 112 Liberty st, N. Y.
ELECTRO DYNAMIC CO. (THE) Phila. Pa. *See index to advertisers.*
FULLER SETH W. 22 Milk st, Boston, Mass.
KIDDER JEROME, 820 B'way, N. Y. *See index to advertisers.*
Law Telegraph Co. 140 Fulton st, N. Y.
Leclanché Battery Co. 149 West 18th st, N. Y.
Longstreet, J. H. 9 Barclay st, N. Y.
Plumb C. 100 Niagara st, Buffalo, N. Y.
Wagner E. W. 36 John st, N. Y.
Wolfe L. W. & Co. 120 South Fourteen st, cor. Douglas st, Omaha, Neb.

Digitized by Google

Belting & Packing Manufacturers.

F.—Courroies (Fab. de)
G.—Maschinenriem-Fabrikanten.

N. Y. Belting & Packing Co. 29 Park row, N. Y.
Gutta Percha & Rubber Mfg. Co. 23 Park pl. N. Y.

Belts—Medical—Galvanic.

F.—Appareils médicaux (Fab. d').
G.—Magnetische Heilapparate.

Hafelfinger Fred. 343 W. 37th st, N. Y.
Hahn Abraham, 296 B'way, N. Y.
Matthews & Co. 92 Church st, N. Y.
Whiting Belt Co. 111 Liberty st, N. Y.
Zeltmacher Adolph, 84 Duane st, N. Y.

Black Lead Manufacturers.

F.—Graphite (Fab. de).
G.—Reissblei.

McKinley Edward, 90 Crosby st, N. Y.

Boiler Cleaners.

F.—
G.—

Hotchkiss J. F. (Mechanical) 84 John st, N. Y.
Johnson & Wilson, 91 Liberty st. N. Y.

Boiler (Anti-Fouling) Compound Makers.

F.—Désincrustants.
G.—Composition zur Verhütung des Incrustirens der Dampfkessel.

Fiagri & Richmond, 66 Cortlandt st, N. Y.
Goldstein William, 488 Cherry st, N. Y.
Houghton & Co. 15 Hudson st, N. Y.
Houghton & Co. 130 Reade st, N. Y.
Jilton M. 506 G'wich st, N. Y.
Mays & Aikman, 216 Franklin st, N. Y.
Moore John D. 38 Dey st, N. Y.
Schwartz Christian, 108 Liberty st, N. Y.
Willing Charles G. 88 John st, N. Y.

Boiler (Anti-Fouling) Makers.

F.—
G.—

Abendroth and Root Mfg. Co. 28 Cliff st, N. Y.
Ahern Dennis, 279 Cherry st, N. Y.
Aller A. 109 Liberty st, N. Y.
Allisohn Joseph J. & Son, 46 Jef. st, N. Y.
Babcock & Wilson Co. 30 Cortlandt st, N. Y.
Booth Samuel, 545 W. 35th st, N. Y.
Cobanks & Theall, 65 Bethune st, N. Y.
Collins William, ft. Bogart st, N. Y.
Duplex Safety Boiler Co. 34 Cortlandt st, N. Y.
Erie City Iron Works, 45 Cortlandt st, N. Y.
Fox George & Son, 511 W. 34th st, N. Y.
Gibson George W. 138 Goerck st, N. Y.
Gold's Heater Mfg. Co. 624 to 642 E. 14th st, N. Y.

Boiler (Anti-Fouling) Makers—*continued.*

Gold's celebrated Safety Sectional Boiler and Triple Extended Surface Radiators
Goshen Safety Boiler Co. 39 Dey st, N. Y.
Hampson Edward P. & Co. 36 Cortlandt st, N. Y.
Handren & Robins, 126 Washn. st, N. Y.
Heather Henry, 607 W. 38th st, N. Y.
Heipershausen Brothers, 45 Thompkins st, N. Y.
Hitchings & Co. 233 Mercer st, N. Y.
Hughes John, 105 E. 131st st, N. Y.
McBain Thomas A. 540 W. 46th Tools st, N. Y.
McCurdy & Warden, 276 West st, N. Y.
Muldoon & Killerlane, 240 West st, N. Y.
Nichols David M. 2 Gouverneur sl. N. Y.
Peck, Howard & Co. 72 West st, N. Y.
Slater & Reid, 409 West and 167 Charles st, N. Y.
Walther & Smith, 481 Eleventh av. N. Y.
Weston Boiler Co. 69 Liberty st, N. Y.

Boiler & Pipe Coverings Manufacturers.

F.—Calorifuge (Fab. de).
G.—Composition zur Verdichtung der Dampfkessel.

Asbestos Felting Works, 108 Liberty st. All kinds of hair felt and non-conducting plastic coverings manufactured and applied; also genuine Asbestos materials.
Chalmers Spence Co. 23 John and ft. E. 5th st, N. Y.
Gilmour Robert M. 82 John st, N. Y.
Johns H. W., Mfg. Co. 87 Maiden la. Sole manufacturers of Genuine Asbestos cement felting and air chamber coverings, N. Y.

Boiler Rivets.

F.—Rivets (Fab. de)
G.—Nietnagel-Fabrikanten.

Fuller Brothers & Co. 139 G'wich st, N. Y.

Boiler Tube Makers.

F.—Tubes pour chandières.
G.—Röhren für Dampfkessel.

Am. Tube Works, 78 John st, N. Y.
Barr Edward, 78 John st, N. Y.
Eagle Tube Co. 622 W. 24th st, N. Y.
Morris Tasker & Co. (Limited) 15 Gold st, N. Y.
National Tube Works Co. 104 John st, N. Y.
Prosser Thomas & Son, 15 Gold st, N. Y.
Reading Iron Works, 28 Platt st. (Pancoast and Tarr agents)

Bolt Manufacturers.

F.—Boulons (Fab. de).
G.—Bolzen-Fabriken.

Fuller Bros. & Co. 139 G'wich st, N. Y.
Gaskell Wm. & Son, 433 E. 25th st, N. Y.
Hall's Samuel, Son, 231 W. 10th st, Telephone call 21st street, No. 225, N. Y.
Hotchkiss Guy C., Field & Co. 624 E. 14th st, N. Y.

Digitized by Google

Bolt Manufacturers—*continued.*

Leonard Orville W. 36 John st, N. Y.
McBain Thomas A. tools, 540 W. 46th st, N. Y.
Newhall Henry B. 105 Chambers st, N. Y. Agent, William H. Haskell & Co. and Oliver Brothers and Phillips
Union Nut Co. 99 Chambers st, N. Y.

Bolt, Nut and Washer Makers.

F.—Boulons et écrous (Fab. de).

G.—Bolzen und Schrauben-Fabriken.

McBain Thomas A. tools, 540 W. 46th st, N. Y
Newhall Henry B. 105 Chambers st, N. Y Agent, Oliver Brothers & Phillips & Standard Nut Co.

Bone Dealers.

F.—
G.—

Aspinall Edwin, 206 Pearl st, N. Y.
Baker H. J. & Brother, 215 Pearl st, N. Y.
Balzer Nicholas, 113 Willett st, N. Y.
Chambers Brothers, 81 Pine st, N. Y.
Eich William, 87 Sheriff st, N. Y.
Kuh Emanuel S. 67 Pearl st, N. Y.

Bone Black Manufacturers.

F.—
G.—

Chambers Brothers, 81 Pine st, N. Y.
Lister Brothers, 159 Front st, N. Y.

Boxes—Wood Mailing and Nested.

F.—
G.—

Maine Mfg. Co. 12 Cortlandt st, N. Y. successor to Swift Mfg. Co., wood, mailing and nested boxes, small wood-work, &c.; J. S. Taylor, agt.

Braids on Patent Cards.

F.—
G.—

Sutro Brothers, 35 Wooster st, N. Y.

Brass Butt Hinge Makers.

F.—
G.—

Bridgeport Brass Co. 19 Murray st, N. Y.
Wallace & Sons, 89 Chambers & 71 Reade st, N.Y.

Brass Finishers.

F.—Bronze et cuivre (Usines de)

G.—Messing und Kupfer-Former.

Blaesius Emile V. 109 Wooster st, N. Y.
Booth C. W. 13 Adams st, Brooklyn, N. Y.
Bowen Patrick A. 220th Sixth st, N. Y.
Cahill John, 207 Centre st, N. Y.
Connolly P. 351 Adams st, Brooklyn, N. Y.
Cory Charles & Son, 278 Division st, N. Y,
Delagrandiere Jules, 218 Thompson st, N. Y.
Dinnen A. & J. 204 E. 29th st, N. Y.
Graf J. cor. Gwinnett & Throop sts, Brooklyn
Gregory James, 106 Cannon st, N. Y.
Hartill William, r 548 Grand st, N. Y.
Hohlweck George, 219 Bowery st, N. Y.
Hubert Baptist, 174 Worth st, N. Y.
Hyde Joseph, 1368 B'way, N. Y.
Keune August, Franklin n Centre st, N. Y.
Kinn Frederick, 5 Centre mkt pl, N. Y.
Kleb George, r 101 S. 5th av, N. Y.
Koch & Adenauer, r 213 Grand st, N. Y.
Landers Edmund, 12 Jacob st, N. Y.
Lesemann Henry, 97 Elizabeth st, N. Y.
McCann Peter, 154 South st, N. Y.
McKenna James J. & Brother, 424 E. 23rd & 396 Broome sts, N. Y.
McNab & Harlin Mfg. Co. 56 John st, N. Y.
Mahoney J. & P. 213 Grand st, N. Y.
Marshall Robert, r 7 Allen st, N. Y.
Martin Benajah M. 142 Greene st, N. Y.
May Henry, 140½ Pitt st, N. Y.
Miller Thomas, 34 W. 3rd st, N. Y.
Mogey William, 418 W. 27th st, N. Y.
Moore Thomas, 80 Elm st, N. Y.
Oehlmann Adolph, r 381 Broome st, N. Y.
Palmenberg Joseph R. 466 Broome st, N. Y.
Payne John H. 33 W. 29th st, N. Y.
Payne Joseph S. 148 W. 33rd st, N. Y.
Power Maurice J. 5 Beekman & 218 E. 25th st, N. Y.
Powers John, 438 E. 10th st, N. Y.
Royle Charles, Franklin n Centre st, N. Y.
Sandermann Herman, 16 McKibbin st, Brooklyn
Sands & Baxter, 6 Reade st, N. Y.
Scanlon Michael, r 120 Elizabeth st, N. Y.
Scheurer F. 68 Gerry st, Brooklyn, N. Y.
Schilling Peter, r 43 Eldridge st, N. Y.
Schirmer Charles, r 100 Wooster st, N. Y.
Schott Emanuel, 80 Elm st, N. Y.
Schrader August, r 216 William st, N. Y.
Staats & Dillmeier, 134 1st st, E.D., Brooklyn, N.N.
Stevenson Henry, 97 Elizabeth st, N. Y.
Sweeney Edward, 4 Duane st, N. Y.
Sweeney J. & Barrett, 3 Dutch st, N. Y.
Thom Charles A. 123 W. 28th st, N. Y.
Vankuyck Henry and Son, 237 Centre st, N. Y.
Whateley George B., 139 Lewis st, N. Y.
Wilson David, 545 W. 33rd st, N. Y.
Wolforth A. 132 Leonard st, Brooklyn
Wood Andrew, 387 Bowery st, N. Y.
Woodhouse Daniel A. r 59 Ann st, N. Y.

Digitized by Google

Brass Founders.

F.—Fondeurs de Bronze.

G.—Messing-Giesserein.

Allt Edmund, 2 Hague st, N. Y.
Anderson & Boytson, 259 Randolph st, Chicago
Band F. 522 Fulton st, San Francisco
Boettcher J. G. 132 1st st, E.D., Brooklyn
Booth C. W. 13 Adams st, Brooklyn
Boston Brass Co. Boston, Mass.
Bourbon Copper & Brass Works, 196 E. Front st, Cincinnati, Ohio
Bowie R. 41 n 2nd st, Brooklyn
Bowie J. 112 Front st, Brooklyn
Brodie & Campbell, 90 Plymouth st, Brooklyn
Bruneman Adolph, 155 Perry st. N. Y.
Bulger T. 70 N 2nd st, Brooklyn
Chamberlain O. P. 12 Spruce st, St. Louis
Cincinnati Brass Works, 15 E. 8th st, Cincinnati, Ohio
Clark Minford S., r 14 Wooster st, N. Y.
Claudat Frank, 117 Macdougal st, N. Y.
Connolly P. 351 Adams st, Brooklyn, N. Y.
Currier C. & Sons, 101 N. J. R. R. av, Newark, N. J.
Donegan & Reilly, 229 West st, N. Y.
Donohue James, 11 Laight st, N. Y.
Farrell T. 358 N 2nd st, Brooklyn.
Floyd W. G. 26 1st st E. D., Brooklyn
Francis Thomas, 67 Vestry st, N. Y.
Fullerton W. 350 1st st, E. D., Brooklyn
Fultons A., Sons & Co. 91 First av, Pittsburgh, Pa.
Gallagher James, 87 Centre st, N. Y.
Greenpoint, 70 West st, Brooklyn
Gregory James, 106 Cannon st, N. Y.
Gregory William, 106 Cannon st, N. Y.
Greenberg & Co. 205 Fremont st, San Francisco
Grothe George, r 101 Wooster st, N. Y.
Haggerty George A. 803 Third av, N. Y.
Hewison Charles W. 169 Christopher st, N. Y.
Hindermeyer J. & Son, Philadelphia.
Hooks Smelting Co. cor. Broad & Hamilton sts, Philadelphia
Horning John, 1368 Dekalbar st, Brooklyn
Hourigan Patrick, 11½ James sl. N. Y.
Ill John, r 201 Wooster st, N. Y.
Joot Edmund, 320 Market st, Newark, N. J.
Korner G. cor. Hope & 9th sts, E. D., Brooklyn
Moore, Jones & Co., 1608 N. 8th st, St. Louis
Newark Brass Wks. 24, Mechanic st, Newark, N.J.
Penna Brass Works, 1226 Hamilton st, Phila.
Pepper J. 186 Plymouth st, Brooklyn
Providence Brass Foundry, 460 Eddy st, Providence, R. I.
Puffer A. D. & Sons, 46 Portland st, Boston, Mass.
Renton F. A. 70 West st, E. D. Brooklyn
Schoener W. L. 226 N. 9th st, Brooklyn
So. Brooklyn S. E. Works, cor. Van Brunt & Grummitt sts, Brooklyn
Stieglitz W. 37 Lorimer st, Brooklyn
Titus W. H. 377 B'way, Brooklyn
Union Brass Mfg. Co. 97 Ohio st, Chicago.

Brass Founders—*continued.*

Union Brass Works, 247 W. Fifth st, Cincinnati, Ohio
Vannevar E. B. 58 Fulton st, Boston, Mass.
Western Brass Works, 17 So. Sixth st, St. Louis
Winsor & Money, 122 Dorrance st, Providence, R.I.
Wohlfarth A. 132 Leonard st, Brooklyn

Brass Founders' Furnaces, etc.

F.—

G.—

Worrall & Co. 28 Elm st, N. Y.

Brass Goods Manufacturers.

F.—Bronze Usines.

G.—Messing-Former.

Brooklyn Brass and Copper Company, cor. Pearl and Front st, Brooklyn
Homing J. 1368 Dekalbar st, Brooklyn
Hyatt W. L. 254 State st, Brooklyn
Long W. 136 1st E. D., Brooklyn
Renton, F. A. 70 West st, Brooklyn
Somers Bros. cor. Front and Pearl st. Brooklyn

Brass & Copper Manufacturers.

F.—Cuivre (Fab. de).

G.—Kupfer-Fabriken.

Ansonia Brass & Copper Co. 19 Cliff st, N. Y.
Bailey William H. 76 John st, N. Y.
Baker Brass Co. 11 Light st, N. Y.
Benedict and Burnham Manufacturing Company. 13 Murray st, N. Y.
Blake Wm. & Co., cor. Brighton & Allen sts. Boston, Mass.
Bridgeport Brass Co. 19 Murray st, N. Y.
Brooklyn Brass & Copper Co. 100 John st, N. Y.
Brown & Brothers, 82 Chambers st, N. Y.
Chemical Copper Company, Phœnixville Pa.
Cocker Bros. & Co. 11 Broad st, Boston, Mass.
Coe Brass Manufacturing Co. Torrington, Conn.
Detroit Copper-Mining Co. of Arizona, Detroit. Michigan
Det. & L. Sup. Copper Co. Detroit, Michigan
Farrell James H. 61 Astor h, N. Y.
Fuller, Dana, & Fitz, 110 North st, Boston, Mass.
Griggs Elizur D. 63 Duane st, N. Y.
Harnickell A. 83 Maiden la, N. Y., agent for the Gunpowder Copper Works
Hendricks Brothers, 49 Cliff st, N. Y.
Holder & Kerrick, 123 Milk st, Boston, Mass.
Holmes, Booth & Haydens, 49 Chambers, N. Y.
Holmes & Wessell Metal Co. 525 W. 24th st, N. Y.
McCracken D. Albion st, N. Y.
Manhattan Brass Co. 475 First av, N. Y.
Merchant & Co. Cliff c Beekman, 525 Arch st. N. Y. and 520 Cherry st, Phila.
Miners' Copper Co. Detroit Michigan
Moffett James G. 119 Prince st, N. Y.

Digitized by Google

Brass & Copper Manufacturers—*continued.*

N. B. Copper Company, New Bedford, Mass.
New Haven Copper Co. 290 Pearl st, N. Y.
Ore Knot Copper Co. 6 Gray st, Baltimore
Orford Cop. and Nickle Co. (Bergen Point) Bayonne City, N. J.
Parkscott & Co. 122 2nd ave, Pittsburgh, Pa.
Parkscott & Co. 64 W. 2nd Cincinnati, Ohio
Plume & Atwood Mfg. Co. 18 Murray st, N. Y.
Phelps, Dodge & Co. 11 Cliff st, N. Y.
Revere Copper Co. 242 South st. N. Y.
Revere Copper Co. 47 Killey st, Boston, Mass.
Rider & Conley, 55 Water st, Pittsburgh, Pa.
Scoville Mfg. Co. 419 Broome st, N. Y.
Sherman John, 296 B'way, N. Y.
Taunton Copper Manufacturing Co. 11 Broad st, Boston, Mass. and Taunton, Mass.
Wallace & Sons, 89 Chambers & 71 Reade st, N. Y.
Waterbury Brass Co. 296 B'way, N. Y.

Brass Polishing Webbing.

F.—
G.—

Cash J. & J. 69 Mercer st, N. Y.

Brass Wire Manufacturers.

F.—
G.—

Ansonia Brass and Copper Co. (The) 19 & 21 Cliff st. N. Y.

Brass Wire Cloth Manufacturers.

F.—
G.—

Hopkins N. Y. Steam Wire Wks. 90 W. B'way, N. Y.
Howard & Morse, 45 Fulton st, N. Y.

Brass Workers' Supplies.

F.—
G.—

Patterson H. T. & Co. 138 Centre st, N. Y.

Brass Workers' Tools.

F.—
G.—

Patterson H. T. & Co. 138 Centre st, N. Y.

Brokers—Metal.

F.—
G.—

Brandon & Co. 105 John st, N. Y.
Brandon H. & E. 69 William st, N. Y.
Bunting Howard, 104 John st, N. Y.
Byrne Edward F. 54 Cliff st, N. Y.
Byrne Joseph & Son, 86 Beekman st, N. Y.
Craigie Chas. O'H. 92 Beekman st, N. Y.

Brokers—Metal—*continued.*

Crane U. O. & Brother, 13 Platt st, N. Y.
Evans Lindley M. 112 John st, N. Y.
Fox & Drummond, 68 Wall st, N. Y.
Gerry Allston & Co. 68 Wall st, N. Y.
Graves O. W. & Co. 21 Cliff st, N. Y.
Gunning Brothers, 104 John st, N. Y.
Haas John F. 52 Broad st, N. Y.
Hagan William, 9 Burling st, N. Y.
Harnickell A. 83 Maiden la, N. Y.
Haskell Thomas H. 55 Cliff st, N. Y.
Hazard Theophilus D. 204 Pearl st, N. Y.
Heyne F. W. & Brother, 13 William st, N. Y.
Hopkins Stephen T. 240 Pearl st, N. Y.
Houston D. & Co. 62 William st, N. Y.
Houston William, 71 William st, N. Y.
Ives Wm. Jay, 52 Broad st, N. Y.
Leman, B. B. & Co. 64 Wall st, N. Y.
Lockwood H. T. & Brother, 54 Cliff st, N. Y.
Logan M. E. 402 Water st, N. Y.
McConnin Michael H. 59 William st, N. Y.
Middleton Wm. S. 52 John st, N. Y.
Odell C. H. & E. 104 John st, N. Y.
Odell Eugene, 79 Cedar st, N. Y.
Peacock Joseph S. 13 Park row, N. Y.
Raht Charles, 85 John st. N. Y.
Rice Arthur H. 55 Fulton st, N. Y.
Rice Frank M. 24 Cliff st, N. Y.
Russell Wm. I. & Co. 12 Cliff st, N. Y.
Sanborn John, 217 Water st, N. Y.
Shotwell Fred. C. 57 Maiden la, N. Y.
White Edward P. & Co. 55 Fulton st, N. Y.
White John E. and Co. 221 Pearl st, N. Y.

Bronze Founders.

F.—
G.—

Henry E. & Bonnard, 237 Mercer st, N. Y.
Muller's Nicholas, Sons, 117 Chambers and 413 E. 25th st, N. Y.
Power Maurice J. 5 Beekman and 218 E. 25th st, N. Y., National Fine Art Foundry, bronze statuary and monuments

Burglar and Fire Alarms.

F.—Avertisseurs électriques, volcurs, feu, &c.
G.—Electrische Allarm-Apparate.

Bogart Abraham L. for improved combinations excelling the "Original Burglar Alarm," guaranteeing perfect security, address A. L. Bogart, 22 Union-square, 4th Avenue side, N. Y.
Dowden George A. 841 B'way, N. Y.
Edwards & Co. patent automatic burglar alarms, hotel annunciators and electric bells, office 41 Beaver, factory Forth av. and 138th st, N. Y.
Gamewell Fire Alarm Telegraph Co. 1½ Barclay st, N. Y.
Holmes Burglar Alarm Telegraph Co. 518 B'way, N. Y., hotel annunciators, call bells, &c. the first and original burglar alarm. Seventeen years experience
Pride, Fraleigh & Kyle, 23 Dey st, N. Y.

Digitized by Google

Cable Manufacturers.

F.—Câble télégraphique (Fab. de.)
G.—Kabel-Fabriken.

Day A. G. 120 B'way, N. Y.
Tillotson L. G. & Co. 5 & 7 Dey st, N. Y., Factory 139, 141, 143 Centre st.

Calcium Lights.

F.—
G.—

Caffrey, Murray & Wilson, 414 Bleecker st, N. Y.
Koster Charles H. 17 Park pl. N. Y.
N. Y. Calcium Light Co. 414 Bleecker st, N. Y.
Roesch & Beseler, 223 E. 9th st, N. Y.

Carbon Manufacturers.

F.—Charbons Electriques.
G.—Holzkohlen-Brennereien.

American Carbon Co. St. Louis Mo.
Boulton Carbon Co. Cleveland, O.
Electrical Supply Co. 109 Liberty st, N. Y.
HEISTER ELECTRIC LIGHT CO. (The) St. Louis, Mo.
Thompson David, 13 Rutzer st, formerly Lush st, Newark, N. J.
Wolfe L. W. & Co. 120 South 14th st, corner Douglas st, Omaha, Neb.

Cast Iron Pipes and Fittings.

F.—
G.—

Brady Alfred, 43 Greene, 1483 B'way and 540 W. 55th st. N. Y.
Campbell William W. 85 Liberty st, N. Y.

Charcoal Makers and Dealers.

F.—Charbon de bois.
G.—Meiler und Holzkohlen-Händler.

Aiken & Woodard, Cambridge st, Mass.
Barren Warren C. 245 W. 19th st, N. Y.
Binney & Smith, 55 Ferry st, N. Y.
Bourgon J. 317, Walnut st, Buffalo, N. Y.
Bradley J. 168 Concord st, Brooklyn, N. Y.
Bradley Miles, 421 Cherry st, N. Y.
Callon M. A. Eastern Av. & Dancanel st, Baltimore, Md.
Chaffee & Cummings, 35 Hawley & East Cambridge st, Boston, Mass.
Dahl Herman, 315 E. 38th st, N. Y.
Donahoe Hugh, 21 Mangin st, N. Y.
Hampton J. W. Camden st, N. J.
Kriete John, 436 E. 75th st, N. Y.
Lyons & Ely, Peoria st, Ill.
McConnell Arthur, 60 Sheriff st, N. Y.
McCullough Frank, 33 E. B'way, N. Y.
Merrill Warren M. 548 W. 25th st, N. Y.
Moore Richard W. 86 Tompkins st, N. Y.
Quinn A. 161 6th st, E. D., Brooklyn, N. Y.
Walker Josiah 517 W. 35th st, N. Y.
Wherle F. T. & Co. 546 and 548 W. 25th st, N. Y., manufacturers of pulverized charcoal for rectifiers.
Wright C. 117 Wood st, Philadelphia, Pa.

Chemicals.

F.—Produits Chemiques.
G.—Chemicalien.

Anhauser William, 38 Dey st, N. Y.
Anthony H. M. 100 Reade st, N. Y.
Bartow Henry T. 174 Pearl st, N. Y.
Bulkley Theodore A. 89 Fulton st, N. Y.
Currie John H. 206 E. 29th st, N. Y.
Daniel Charles E. 181 Pearl st, N. Y.
Dey James R. 114 Nassau st, N. Y.
Dodge & Olcott, 88 William st, N. Y.
Empire Chemical Co. 145 B'way, N. Y.
Erdensalz Chemical Co. 120 Liberty st, N. Y.
Freuchtwanger L. & Co. 16 Dey st, N. Y.
Fries Alex. & Brothers, 92 Reade st, N. Y.
Fuchs & Rudolphy, 33 Canal st, N. Y.
Gabriel & Schall, 205 Pearl st, N. Y., Borate of manganese
Gantz, Jones & Co. 176 Duane st, N. Y.
Gaylord John T. 32 S. William st, N. Y.
Gray John G. 103 Maiden la, N. Y.
Gray William S. 103 Maiden la, N. Y.
Gridley & Co. 87 Maiden la, N. Y.
Hann Otto, 1 Cedar st, N. Y., successor to Louis Pokorny
Hanson & Vanwinkle, 92 Liberty st, N. Y.
Harnickell A. 83 Maiden la, N.Y., copper produce
Hirsh, Leon, 78 Thomas st, N. Y.
Hoagland Theodore B. 91 Maiden la, N. Y., carbolic acid
Hurd Robert B. 2 Leonard st, N. Y.
Kalbfleisch's Martin, Sons, 55 Fulton st, N. Y.
Kent Edward G. 20 Liberty st, N. Y.
Klipstein August, 59 Cedar st, N. Y.
Lee James & Co. 72 Pine st, N. Y.
Lodi Chemical Works, 38 Platt st, N. Y.
Luigo Oriazio, 4 University bldg, N. Y.
Maas & Waldstein, 81 G'wich and 92 New Church st, N. Y.
Manhattan Chemical Co. 276 Pearl st, N. Y.
Maynard Chemical Co. 424 Washn. st, N. Y.
Morgan James L. & Co. 47 Fulton st, N. Y.
Nelson Alfred, 4 Cedar and 549 W. 34th st, N. Y.
N. Y. Chemical Mfg. Co. 3 E. 4th st, N. Y.
N. Y. Coal Tar Chemical Co. 10 Warren st, N. Y.
N. Y. Dyewood, Extract of Chemical Co. 161 Front st, N. Y.
N. Y. Tartar Co. 106 Wall st, N. Y.
Nichols Francis B. 62 William st, N. Y.

Chemical Apparatus.

F.—Appareils de Chemiques.
G.—Chemische Fabriken.

Baetz William, 96 Fulton st, N. Y.
Benjamin E. B. 6 Barclay & 12 Vesey st, N. Y.
Berge J. & H. 95 John and 191 G'wich st, N. Y.
Eimer & Amend, 205, 207, 209 & 211 Third av. corner 18th st, N. Y.
Franc Rudolph & Co. Long Island Terra-Cotta Works, 218 Fulton st, N. Y.
Meyer Curk W. 11 Dey st, near B'way, N. Y.
Montgomery & Co. 105 Fulton st, N. Y. blow pipes, magnets, files, etc.

Digitized by Google

Chemical Apparatus—*continued.*

Raynor Hiram M. 25 Bond st, N. Y.
Reichardt F. Alfred & Co. 96 Liberty st, N. Y.
Richards & Co. 398 Bowery st, N. Y.
Rohrbeck William J. 14 Bond st, N. Y.

Chemical Paper Manufacturers.

F.—
G.—

Levy Albert, 4 Bond st, N. Y. Positive Ferro Prussiate Paper (Cl. J's patent) giving dark blue lines on pure white background on first impression.

Chemists—Analytical.

F.—Chimistes Analytiques.
G.—Analytiker.

Battershall, Jesse P. 3 E. 14th st, N. Y.
Benjamin Marcus, 6 Barclay st, N. Y.
Bourgougnon Alex. 26 W. 4th st, N. Y.
Bragg Everett B. 84 Broad st, N. Y.
Castner H. Y. & Bro. 197 Pearl st, N. Y.
Creuse Jules L. A. 36 Beekman st, N. Y.
Doremus Chas. A. 52 Union sq, N. Y.
Doremus R. Ogden, 52 Union sq, N. Y.
Endemann Hermad, 33 Nassau st, N. Y.
Gallatin, A. H. 26 Cooper Union st, N. Y.
Gesner George W. 45 Cliff st, N. Y.
Gifford William E. 54 Pine st, N. Y.
Goetschius Howard, 590 Washn. st, N. Y.
Grund Frederick A. 121 Front st, N. Y.
Habirshaw William M. 159 Front st, N. Y.
Hiepe Henry C. 104 John st, N. Y.
Krackowizer St. & Harnish, 113 Water st, N. Y.
Kroupa Richard J. 506 Sixth st, N. Y.
Ledoux & Ricketts, 10 Cedar st, N. Y.
Love Edward G. 122 Bowery st, N. Y.
Milne J. G. & Co. 59 Dey st, N. Y.
Moore Gideon E. 122 Front & 69 Liberty st, N. Y.
Phillips J. S. 1 Wall st, N. Y.
Rau Henry M. 92 New Church st, N. Y.
Rogers & Morris, 95 Liberty st, N. Y.
Rupp William, 117 Pearl st, N. Y.
Sherer Brothers, 122 Front st, N. Y.
Sloane T. O'C. 119 Pearl st, N. Y.
Stebbings James H. jr. 68 Beaver st, N. Y.
Stillman Thomas B. & Co. 40 B'way st, N. Y.
Stillwell and Gladding, 55 Fulton st, N. Y.
Tiffany & Mott, 10 Spruce st, N. Y.
Urban Adolph, 497 Tenth av, N. Y.
Warder R. B. Prof. North Bend, Ohio
Weichert Arnold, 101 Wall st, N. Y.
Wingate Charles F. 119 Pearl st, N. Y.

Chemists—Manufacturing.

F.—Chimistes Industriels et Métall-urgiques.
G.—Chemische Fabriken.

Arnois & Lecour, 547 W. 18th st, N. Y.
Arthur B. F. & Co. 84 Front st, N. Y.
Beggs E. J. & Co. 143 Maiden la, N. Y.

Chemists, Manufacturing—*continued.*

Billings, Clapp & Co. 20 Liberty st, N. Y.
Binns Joseph & Brother, 183 Pearl st, N. Y.
Bloede & Rathbone, 12 Cedar st, N. Y.
Bocking Carl, 34 City Hall pl, N. Y.
Brugman F. & Son, 41 Ann st, N. Y.
Chaskel James, 44 W. B'way N. Y.
Church & Co. 129 Pearl and 82 Beaver st, N. Y.
Clay John jr. 60 Cedar st, N. Y.
Cochrane A. & Co. 55 Kilby st, Boston
Cooper Charles & Co. 194 Worth st, N. Y.
Dick Dundas & Co. 112 White st, N. Y.
Diecks Pharmaceutical Extract Co. 173 G'wich st, N. Y.
Dreyfus Aaron & Co. 15 Cedar st, N. Y.
Eames Charles J. 26 Pine st, N. Y.
Edrehi Isaac D. 227 G'wich st, N. Y.
Erkenbrach John, 34 Platt st, N. Y.
Evanovitch Gusser, 11 E. 10th st, N. Y.
Fuller Josiah P. 629 Hudson st, N. Y.
Guiterman Alexander, 159 Front st, N. Y.
Hecking Fred. & Co. 388 Pearl st, N. Y.
Henes William F. 159 E. 88th st, N. Y.
Hiscox & Co. 163 William st, N. Y.
Hubbard Abraham, 338 E. 14th st. N. Y.
Kalbfleisch's Martin, Sons, 55 Fulton st, N. Y.
Keith B. & Co. 41 Liberty st, N. Y.
Kenzel John S. 15 New Chambers N. Y.
Ker W. W. & Co. 113 Reade st, N. Y.
King Leroy J. 16 Dey st, N. Y.
Kraft Charles H. 55 Fulton st, N. Y.
Maas & Waldstein, 81 G'wich st, N. Y., sugar colour, wood alcohol, cyanite potassium speciality
McIntyre & Embury, 99 N. Moore st, N. Y.
Maltine Mfg. Co. 182 Fulton st, N. Y.
Marchand Charles, 635 B'way, N. Y. specialities, peroxide of hydrogen and binoxide of baryum
National Chemical Works Co. 159 Front st, N. Y.
Nelson Alfred, 4 Cedar st, N. Y.
N. Y. Pharmacal. Assn. 10 College pl, N. Y.
N. E. Acid Co. 159 Front st, N. Y.
Page George W. 206 B'way, N. Y.
Passaic Chemical Co. 85 John st, N. Y.
Pennington J. C. & D. 5 William st, N. Y.
Pfizer Charles & Co. 81 Maiden la, N. Y.
Phillips Charles H. 2 Platt st, N. Y.
Platt Henry B. 36 Platt st, N. Y.
Pollock Julius, Boston av. n 166th st, N. Y.
Powers & Weightman, 56 Maiden la, N. Y.
Powers & Weightman, 838 N. 9th st, Phila, Pa.
Price Edward W. 58 Maiden la, N. Y.
Reed & Carnrick, 182 Fulton st, N. Y.
Rosengarten & Sons, 26 Liberty st, N. Y.
Scott & Browne, 108 Wooster & 575 G'wich, N. Y.
Seabury & Johnson, 21 Platt st, N. Y.
Simon J. P. L. & Co. 344 & 346 E. 23rd st, N. Y.
Tilden & Co. 24 Liberty st, N. Y.
Toch, Grothe & Co. 59 Goerck st, N. Y.
Walker Jas. E. & Co. 20 Cortlandt st, N. Y.
Warner Wm. R. & Co. 49 Cedar st, N. Y.
White Charles T. Co. (The) 54 Maiden la. and 29 Liberty st, N. Y.
Williamson Douw D. 11 Dey st, N. Y.
Wyman Isaac G. 142 Horatio st, N. Y.

Digitized by Google

Chronometers.

F.—Chronomètres.
G.—Chronometer-Macher.

Bliss John & Co. 128 Front st, N. Y.
Duren & Costigan, 164 Maiden la, N. Y.
Eggert Charles B. 24 John st, N. Y.
Eggert's D. Sons, 74 Wall st, N. Y.
Gray Peter L. de Mory & Co. 62 South st, N. Y.
Hammond Samuel, 41 William st, N. Y.
Hewitt H. T. 164 Maiden la, N. Y.
Medinger Eugene F. 115 Broad st, N. Y.
Negus T. S. & J. D. 140 Water st, N. Y.
Nieberg Frederick W. C. 8 John st, N. Y.
Queen James S. 78 Nassau st, N. Y.
Rupp Michael & Co. 39 South st, N. Y.
Sweetser George, 60 South st, N. Y.
Tagliabue Giuseppe, 302 Pearl st, N. Y.

Copper Founders.

F.—Fondeurs en cuivre.
G.—Kupfergiessereien.

Benedict & Burnham Manufacturing Company, 13 Murray st, N. Y.
Coe Brass Manufacturing Company, Torrington, Conn.

Copper Lightning Rod Manufacturers.

F.—Paratonnerres (Fab. de câble pour).
G.—Blitzableiter-Fabrikanten.

Baldwin & Wiley, Omaha, Nebraska
Barnes A. G. Lincoln, Nebraska
Brand E. C. M. Indianapolis, Ind.
Cole J. J. 723 J. T. (Franklin Lightning Rod Works), St. Louis
Emshute, 424 Willoughby av, Brooklyn, N. Y.
Gibson 7, Geneseo, Ills.
Guckles G. 1800 Jackson st, St. Louis
Harris & Co. 54 Bromfield st, Boston, Mass.
Konants W. A. Quincy, Ills.
Miller A. F. 1801 Jackson st, St. Louis
Mitchell S. J. & Son, 918n 21st st, St. Louis
Munsen D. Indianapolis, Ind.
Nichols J. M. Freeport, Ills.
Ogan P. M. 16 S. 5, St. Louis.
Orcutt W. 65 Cornhill, Boston, Mass.
Prescoll Bros. 52, Killey st, Boston, Mass.
Smith J. W. Galesbury, Ills.
West P. St. Cloud, Minn.

Copper Nails and Tacks.

F.—Clous de cuivre.
G.—Kupfernägel.

Merchant & Co. Cliff c. Beekman (525 Arch & 520 Cherry st, Phila.)
Wallace & Sons, 89 Chambers & 71 Reade st, N. Y.

Copper Rivet Manufacturers.

F.—Rivets de cuivre.
G.—Nietnagel-Fabrikanten.

Bridgeport Brass Co. 19 Murray st, N. Y.
Wallace & Sons, 89 Chambers & 71 Reade st, N. Y.

Coppersmiths.

F.—Fondeurs en Cuivre et Bronze.
G.—Kupferschmiede und Gürtler.

Avery Thomas C. 231 South st, N. Y.
Baerenklau Gustav A. 172 Forsyth st, N. Y.
Bishop & Dectjeen, 210 South st, N. Y.
Buhler Frederick, 92 Eldridge st, N. Y.
Burkhard Thomas, 125 White st, N. Y.
Burkhart Etta, 45 Allen st, N. Y.
Carpenter Allan, 103 N. Moore st, N. Y.
Donegan & Reilly, 229 West st, N. Y.
Frank Marks, 40 Ludlow st, N. Y.
Graves & Hoffmire, 14 James sl, N. Y.
Heinemann Godfrey, 112 John st, N. Y.
Jochum & Jetter, 148 E. 50th st, N. Y.
Kaplan Harris, 13 Essex st, N. Y.
Knowles Fred. C. 35 Desbrosses st, N. Y.
Martin Louis, 56 W. Houston st, N. Y.
Mills Abner B. 127 Av. D. N. Y.
Moneuse Elie, 128 S. 5th av. N. Y.
Morton Thomas S. 65 Elizabeth st, N. Y.
Neumann John, 118 Elizabeth st, N. Y.
Petterson John, 102 Market st, N. Y.
Pfenning Henry R. 136½ Liberty st, N. Y.
Reisert & Orth, 181 Prince & 122 Sullivan st, N. Y.
Roos August, 232 W. 27th st, N. Y.
Rosenthal Harris, 47 Orchard st. N. Y.
Sagnol Etienne, 44 W. 4th st, N. Y.
Shaw Jas & Co. 173 Christopher st, N. Y.
Spitzer Leopold, 66 Centre st, N. Y.
Steeger Henry & Co. 143 E. 31st st, N. Y.
Street William, r 92 Fulton st, N. Y.
Stump George W. 460 G'wich st, N. Y.
Trageser John, Steam Copper Works, 447 to 455 W. 20th st, bet. Ninth and Tenth avs. and 273 Pearl st, N.Y.
Vetterling William, 210 Centre st, N. Y.

Copper Wire Manufacturers.

F.—Fils de cuivre (Fab. de).
G.—Kupferdraht—Fabr.

Ansonia Brass & Copper Co. (The) 19 & 21 Cliff st, N. Y.

Cotton Waste Manufacturers.

F.—Déchets de Coton.
G.—Putzlappen-Händler.

Egan K. & Co., 19 Burling sl & 86 John st, N. Y.
Howard Edward, 147 Duane, N. Y.
Jcoup F. W. & Co. 67 Liberty st, N. Y.
Massasoft Manufacturing Co. 86 Leonard st, N. Y.
Palmer Herbert F. 23 Thomas st, N. Y.
Rall William F. 35 Stone st, N. Y.
Smith James F. 36 Peck sl, N. Y.
Turner W. H. & W. C. 86 Leonard st, N. Y.

Covered Wire Manufacturers.

F.—Fils Isolés (Fab. de).
G.—Umsponnener Draht.

Ansonia Brass & Copper Co. (The) 19 & 21 Cliff st, N. Y.
Wolfe L. W. & Co. 120 South 14th st, cor. Douglas, Omaha, Nebraska

Digitized by Google

Creosoted Wood.

F.—
G.—Kreosot-Holz.

Hayford Creosoting Works, 4 Post Office sq, Boston, Mass. & 10 Warren st, N. Y. (E. R. Andrews prop)

Crucible Manufacturers.

F.—Creusets (Fab. de).
G.—Schmelztiegel-Fabr.

Berge J. & H. 194 G'wich & 95 John sts, N. Y.
Berge J. & Son, 114 William st, N. Y.
Goebel J. & Co. 129 Maiden la, N. Y.

Designers and Draughtsmen.

F.—Dessinateurs.
G.—Zeichner.

Anderson John, 767 B'way, N. Y.
Androus George L. 353 Sixth av, N. Y.
Ames Daniel T. 205 B'way, N. Y.
Barnes R. F. 120 B'way, N. Y.
Barrett Joseph, 17 Warren st, N. Y.
Bartlett Edward E. 34 Park row, N. Y.
Beard Daniel C. 191 B'way. N. Y.
Beard Frank, 191 B'way, N. Y.
Beard Harry, 191 B'way, N. Y.
Beard James C. 191 B'way, N. Y.
Bienz & Son, 71 Third av, N. Y.
Bonniol Adolph, 83 Nassau st, N. Y.
Bonville Charles E. H. 7 Murray st, N. Y.
Boston F. J. & Brother, 261 B'way, N. Y.
Brundage William T. 14 John st, N. Y.
Buckler John, 43 Astor h, N. Y.
Campbell Edward B. 58 Ann st, N. Y.
Coughlin William H. 56 Cedar st, N. Y.
Cumming George, 219 E. 18 Ivy st, N. Y.
Cusachs Philip G. 22 N. William st, N. Y.
Day Benjamin, 48 Beekman st, N. Y.
Day W. H., Debaud & Co. 47 Lafayette pl, N. Y.
Decker Henry, 109 E. 13th st, N. Y.
Dieterich Gustave, 229 B'way, N. Y.
Eichling Henry 21 Park row, N. Y.
Espinosa Frank J. 279 Sixth av, N. Y.
George Samuel D. 114 Nassau st, N. Y.
Giles J. Lawrence, 84 Nassau st, N. Y.
Halsey William G. 64 College pl, N. Y.
Harper William St. J. 11 E. 14th st, N. Y.
Hartwell H. Edgar, 40 E. 14th st, N. Y.
Hebberd Charles E. 33 B'way, N. Y.
Hertwig Theodore, 153 Fourth av, N. Y.
Hodgson John S. 14 John st, N. Y.
Hopkins Livingstone, 116 Nassau st, N. Y.
Hurdle, J. A. Room 6, Tribune bldgs, N. Y.
Hurdle James, r 6 Tribune bldgs. Ivy st, N. Y.
Jaudon Charles, 48 Beekman st, N. Y.
Kingman Eugene, 34 Park row, N. Y.
Kenney, R. D. 30th & Chestnut sts, Phil. Pa.
Lancaster J. H. 205 B'way & 95 Liberty st, N. Y.
Lander Benjamin, 14 John st, N. Y.
Law Edward M. 14 John st, N. Y.
McIlvaine Thomas, 36 Beekman st, N. Y.

Designers and Draughtsmen—*continued.*

Metcalfe George R. 58 Ann st, N. Y.
Miatt George W. Tryon row, N. Y.
Miller Charles A. 30 Vesey st, N. Y.
Mittendorfer Maximilian V. 83 Nassau st, N. Y
Moser David H. 58 Ann st, N. Y.
Nelson & Myers, 58 Ann st, N. Y.
Norman Adolphus P. 14 John st, N. Y.
Ogden H. A. 317 B'way, N. Y.
Parsons Charles R. 48 Beekman st, N. Y.
Peet William C. 84 Nassau st, N. Y.
Protin Brothers, 47 S. 5th av, N. Y.
Purcell Edward, 11 Ann st, N. Y.
Redman & Kenny, 52 John st, N. Y.
Renault Louis, 35 Nassau st, N. Y.
Schimpf August H. 169 William st, N. Y.
Schneider & Klepper, 44 W. B'way, N. Y.
Sheffield Frederick, 14 John st, N. Y.
Simons James S. 14 John st, N. Y.
Spiegle Charles jr. 14 John st, N. Y.
Stephens Henry L. 160 Fulton st, N. Y.
Straeffer E. 7 Murray st, N. Y.
Taylor & Meeker, 4 College pl, N. Y.
Teggin Andrew, 11 E. 14th st, N. Y.
Toaspern Herman jr. 7 Warren st, N. Y.
Troy Henry W. 160 Fulton st, N. Y.
Vollbracht Henry, 23 E. 14th st, N. Y.
Wallin Samuel, 7 Murray st, N. Y.
Weldon Charles D. 11 E. 14th st, N. Y.
White George G. 52 John st, N. Y.
Will August, 744 B'way, N. Y.
Williams Arthur B. 123 Fulton st, N. Y.
Winham Edward A. jr. 58 Ann st, N. Y.
Wood & Richmond, Office 176 B'way, N. Y.
Wyand Daniel E. 7 Murray st, N. Y.
Yeager Walter R. 169 William st, N. Y.
Zenope Alexander, 4 College pl, N. Y.

Directory (Electrical) Office.

F.—
G.—

BERLY'S BRITISH, AMERICAN AND CONTINENTAL ELECTRICAL DIRECTORY AND ADVERTISER
Cumming George, 219 E. 18th st, N. Y.

Dynamo & Magneto Electric Machine Manufacturers.

F.—Machines dynamo et magnéto électriques.
G.—Dynamo-Maschinen.

Arnoux & Hochhansen Electric Co. 221, 217 East 20th st, N. Y.
COLBURN J. W. & Co. Fitchburg, Mass. MANUFACTURERS OF DYNAMO MACHINES FOR ELECTRIC LIGHTING, AND ELECTRO PLATING.
Eddy A. H. 68 Market st, Hartford, Conn.
Electro Dynamic Co. of Phila. 121 S. 3rd st, Phila.
Fuller Electrical Co. 44 East 14th st, (Wheeler & Wilson Bldg.) Union sq, N. Y.
Wallace & Sons, 89 Chambers & 71 Reade sts, N. Y.

Digitized by Google

Dynamo and Magneto Electric Machine Manufacturers—*continued.*

Wolfe L. W. & Co. 120 South 14th st, corner Douglas st, Omaha, Neb. Electro Magnetic Engines.

Zucker & Levett, Chemical Co. 540, 542, 544 & 546 W. 16th st, N. Y.

Electric Alarm Manufacturers.

F.—Avertisseurs électriques.
G.—Electrische Allarm-Fabr.

Applegate's Electric Floor Mat Alarm Manufacturing Company, 95 Chambers st, N. Y.

Automatic Fire Alarm Co. 52 Kirby st, Boston, Mass.

Automatic Sig. Tel. Co. 294 B'way, N. Y.

BOGART A. L. 22 Union sq, N. Y. *See index to advertisers.*

Bosck Bros. Newark, N. J.

BOSTON ELECTRIC CO. 550 Washington st, Boston, Mass.

Boston Electric Protection Association, 53 Summer st, Boston, Mass.

BOWEN Wm. J. Norwalk, Ohio. *See index to advertisers.*

CLARK W. C. & CO. 205 Federal st, Portland, Mass.

Crane M. G. & Co. 267 Washington st, Boston, Mass.

Douglas F. A. over 28 Main st, Lockport, N. Y.

Dowden G. A. 223 Market st, Newark, N. J.

Electro-Medical Manfg. Co. 38 Union sq, N. Y.

Fuller Seth W. 22 Milk st, Boston, Mass.

Goodrich A. B. 180 Main st, Buffalo, N. Y.

Hazazer E. W. 33 Nassau st, N. Y.

Holmes E. T. & Co. 342 Washington st, Boston, Mass.

Longstreet J. H. 9 Barclay st, N. Y.

Mason W. S. Attleborough, Michigan

Moses T. Crane & Co. 267 Boston st, N. Y.

Newman A. G. 1180 B'way & 17 W. 28th st, N. Y. Successor to Newman & Capron

Pool A. A. & Co. 55 N. J. R. R. ave, Newark, N.J.

REDDING JEROME & CO. 30 Hanover st, Boston, Mass.

ROUSSEAU D. 138th st. and 4th av, manufactory and office 181 B'way, N. Y.

SCHOOLEY W. D. Richmond, Ind.

Smith T. J. 81 3rd st (two doors from B'way), Brooklyn, E. D.

Smith & Rhodes' Electric Co. Limited, 95 5th av, cor. 17th st, N. Y.

Snyder J. P. 96 Fulton st, N. Y.

Utica Fire Alarm Telegraph Co. 106 & 108 Liberty st, Utica. Albany Br. 25 Steuben st, Albany, N. Y.

Union Electric Works, 126 Clark st, Chicago, Ills. Raslendell, propr.

Wolfe L. W. & Co. 120 S. 14th st, cor. Douglas st, Omaha, Neb.

Electric Annunciators and Call Bells.

F.—Avertisseurs électriques.
G.—Electrische Hausglocken.

BOGART A. L., 22 Union sq., Fourth av. side, N.Y. *See index to advertisers.*

BOSTON ELECTRIC Co. 550 Washn. st, Boston.

BOWEN WM. J. Norwalk, Ohio. *See index to advertisers.*

Douglas F. A. Over 28 Main st. Lockport, N.Y.

Edwards & Co. 41 Beaver, factory, Fourth av. and 138th st, N. Y.

Electro-Medical Mnfg. Co. 38 Union sq. N. Y.

FULLER SETH W. 22 Milk st, Boston.

Goodrich A. B. 180 Main st. Buffalo, N. Y.

Holmes Burglar Alarm Telegraph Co. 518 B'y. N.Y.

Longstreet J. H. 9 Barclay st. N. Y.

Newman A. G. 1180 B'way & 17 W. 28th st. N.Y. Successors to Newman & Capron

Plumb C. 100 Niagara st. Buffalo, N. Y.

REDDING JEROME & Co. 30 Hanover st, Boston. Mass.

ROUSSEAU D. 138th st. & 4th av. Manufacturing Office 181 B'way, N. Y.

Smith & Rhodes Electric Co. Limited, 95 Fifth av. Cor. 17th st. N.Y.

Wolfe L. W. & Co. 120 South 14th st. cor. Douglas, Omaha, Neb.

Electric Apparatus for Lighting Gas.

F.—Appareils électriques pour allumer le gaz.
G.—Electrische Apparate zum Anzünden des Gases.

BOGART A. L. 22 Union sq, N. Y. *See index to advertisers.*

Boston Electric Co. 550 Washington st, Boston.

BOWEN Wm. J. Norwalk, Ohio. *See index to advertisers.*

Cincinnati Gas Co. Cincinnati, Ohio.

CLARK W. C. 205 Federal st, Portland, Mo.

Douglas F. A. over 28 Main st, Lockport, N. Y.

Edwards & Co. 41 Beaver, factory Fourth av. and 138th st, N. Y.

FULLER SETH W. 22 Milk st, Boston, Mass.

Holmes' Burglar Alarm Telegraph Co. 518 B'way, N. Y.

N. W. Electric Gas Lighting Co. 134, Dearborn st, Chicago & 77 Clark st.

REDDING JEROME & Co. 30 Hanover st, Boston, Mass.

Rousseau D. 4th av, nr. 138th st, N. Y. Office 181 B'way, bet. Courtland & Dug. sts.

SCHOOLEY W. D. Richmond, Ind. Gas Lighter & Extinguisher

UNION ELECTRIC MANUFACTURING CO. 7 & 9 Bond st, N. Y. *See index to advertisers.*

UNITED STATES (THE) ELECTRIC LIGHTING CO. 120 B'way, N. Y. *See index to advertisers.*

Digitized by Google

Electric Appliance Makers.

F.—
G.—Fabrikanten von electrischen Artikeln.

ANSONIA BRASS & COPPER CO. 19 & 21 Cliff st, N. Y.
Douglas F. A. over 28 Main st, Lockport, N. Y.
Edson's Speed and Pressure Recording and Alarm Gauges, for "Steam Dynamo-machines," indispensable for safety and economy, office 91 Liberty st, N. Y.
Plumb C. 100 Niagara st, Buffalo, N. Y.

Electric Attachments Regulating Time Clocks.

F.
G.

Bogart Abraham L. 22 Union square 4th avenue side, N. Y.
Edwards & Co., 4th avenue & 138 st, N. Y.
Holmes' Burglar Alarm Telegraph Co., 518 B'way, N. Y.

Electric Bell Hangers.

F.—Sonneries électriques (Entrepreneurs pour l'entretien de).
G.—Electrische Glocken—Einrichter.

Fuller Seth W., 22 Milk st, Boston.

Electric Bell Manufacturers.

F.—Sonneries électriques (Fab. de).
G.—Electrische Glocken-Fabrikanten.

American Bell Telephone Co. 95 Milk st, Boston, Mass.
BOGART A. L., 22 Union square, N. Y. *See index to advertisers.*
BOSTON ELECTRIC CO. 550 Washington st, Boston, Mass.
BOWEN WM. J., Norwalk, Ohio. *See index to advertisers.*
CLARK W. C., 205 Federal st, Portland, Mass.
Davis & Watts, Baltimore
Douglas F. A., over 28 Main st, Lockport, N. Y.
Edwards & Co., 4 avenue & 138th st, N. Y.
Electro-Medical Mfg. Co., 38 Union sq, N. Y.
FULLER SETH W., 22 Milk st, Boston, Mass.
Holmes' Burglar Alarm Telegraph Co., 518 B'way, N. Y.
Newman A. G., 1180 B'way & 17 West 28th st, N. Y. Successor to Newman & Capron.
Plumb C., 100 Niagara st, Buffalo, N. Y.
POST & CO., Cincinnati, Ohio. *See index to advertisers.*
REDDING, JEROME & CO., 30 Hanover st, Boston, Mass.
ROUSSEAU D., 4th ave. near 138th st, N. Y. Office 181 B'way, between Courtland & Dey sts.
Rumsey & Co. 93 Liberty st, N. Y.
Smith T. J. 81 3rd st, (2 doors from B'way) Brooklyn, E. D.
Smith & Rhodes Electric Co. Limited, 95 5th ave. corner 17th st, N. Y.
Williams jr. Charles, 109 Court st, Boston, Mass.
Wolfe L. W. & Co. 120 South 14th st, corner Douglas st, Omaha, Neb.
Zimdars C. E. 160 W. 27th st, N. Y. (pneumatic call)

Electric Belts, Bands, &c.

F.—
G.

Electric Appliance Co. (Limited) 147 E. 15th st.

Electric Blasting Apparatus.

F.—
G.—

Laflin & Rand Powder Co. 29th Murray st, N.Y.

Electric Carbon Manufacturers.

F.—Charbons électriques (Fab. de).
G.—Electrische Kohlen-Fabr.

Thompson David, 13 Rutger st, formerly Lush st, Newark, N. J.

Electric Clock Makers.

F.—Horloges Electriques (Fab. d').
G.—Electrische Uhren-Fabrikanten.

Cincinnati Electric Clock Co. Cincinnati, Ohio.
Reich Louis, Albany, Ga.
ROUSSEAU D. 138th st. & 4th ave. Manufactory & office 181 B'way, N. Y.

Electric Clothing Manufacturers.

F.—
G.—

Wilsonia Magnetic Co. 465 Fulton st, Brooklyn.

Electric Companies.

F.—Compagnies électriques.
G.—Gesellschaften für Electricität.

Arnoux & Hochhausen Electric Co. 221 & 227 East 20th st, N. Y.
Chicago Electric Mfg. Co. 4 Rush & 88 E. Luke st, N. Y.
Economic Electric Co. Incorporated under the laws of the State of Maine with a capital of $500,000, for "the purpose of manufacturing, buying, selling and leasing machinery, apparatus, instruments and appliances of all kinds relating to Electricity."
Its Officers are—
President—E. Ernest Caduc
Secretary and Treasurer—Geo. J. Morse
Head-quarters—Boston, Mass. U. S. A.
Jablochkoff Electric Lighting Co. (The) 5 Tribune Buildings, N. Y.
KNUDSON ELECTRIC CO. Limited, 39 Nassau st, N. Y.
Western Electric Co. Indianapolis, Ind., G. H. Carter, Supt. Assembling Depôt.

Digitized by Google

Electric Gas Burner Manufacturers.

F.—
G.—Electrische Gasbrenner.

Smith & Rhodes Electric Co. Limited, 95 5th av, corner 17th st, N. Y.

Electric Lamp Manufacturers.

F.—Lampes électriques (Fab. de).
G.—Electrische Lampen.

Britton Edward E. Agent for the sale of Arc and Incandescent Lights, manufactured under patents of the U.S. Electric Lighting Co. of New York, 44 Court st (room 33), Brooklyn, N. Y.

Fuller Electrical Co. 44 East 14th st (Wheeler & Wilson building), Union sq, N. Y.

SCHOOLEY W. D., Richmond, Ind. *See index to advertisers.*

UNITED STATES ELECTRIC LIGHTING CO. (THE) 120 B'way, N. Y. *See index to advertisers.*

Electric Light Apparatus Manufacturers.

F.—Eclairage électrique (Fab. d'appareils d').
G.—Apparate für electrische Beleuchtung.

Union Electric Manfg. Co. 7 & 9 Bond st, N. Y.

Van Depoele Electric Light Co. Office & Works Van Buren & Franklin sts, Chicago, Ills.

Electric Light Companies.

F.—Eclairage électrique (Compagnies d').
G.—Gesellschaften für electrische Beleuchtung.

Albany Electric Illuminating Company, 71 Trinity pl, Albany, N. Y.

Allegheny County Light Company, 11, 13, & 15 Virgin al, between Wood and Liberty sts, Pittsburgh, Pa.

Am. Electric Light Co. New Britain, Conn.

Am. Electric Light Co. 58 New Church st, N. Y.
Capital Stock—$500,000; 10,000 shares
Inventors—Bohm, Bernstein, Moffatt and Chichester
This Co. has both incandescent and arc lights

Am. Electric Light Co. 540 W. 16th-street, N. Y.
Capital—$400,000; in 20,000 shares
Inventor and Electrician—H. J. Muller
Chief Promoter and Capitalist—Alex. Levett

Am. Magneto-Electric Light Co. 39 B'way, N. Y.

Arnoux Electric Co. (The) 227 E. 20th st, N. Y.
Capital Stock—$100,000; 1,000 shares
Chief Financial Broker—Frederick A. Potts, No. 110 Broadway, N.Y.
Electrician & Inventor—Arnoux

Atlantic & Pacific Electric Light Manufacturing Co. Camden, N. J.
Inventors—Franz Rabl, H. C. Sample

Beers & Co. 163 W. 29th st, N. Y.

Blanchard Light & Power Co. cor. Quay & West sts, Brooklyn, N. Y.

Brush Electric Association, 5th & Olive sts, St. Louis.

Electric Light Companies—*continued.*

Brush Electric Association, 404 Market-stt St. Louis, Mo.

Brush Electric Co.
Parent Company—379 Euclid-av. Cleveland, O.

Brush Electric Co. 7 South st, Baltimore, Md.

Brush Electric Illuminating Co. 853 B'way, N. Y.

Brush Electric Light & Power Co. Indianapolis, Ind. (Jno. Cavenprest)

Brush Electric Light and Power Company, Atlanta, Ga.

Brush Electric Light and Power Company, Butler, Mo.

Brush Electric Light and Power Company, Butte, Montana

Brush Electric Light and Power Company, Columbus, Ga.

Brush Electric Light and Power Company, Galveston, Texas

Brush Electric Light and Power Company, Helena, Montana

Brush Electric Light and Power Company, Indianapolis, Ind.

Brush Electric Light and Power Company, Knoxville, Tenn.

Brush Electric Light and Power Company, Maxon, Ga.

Brush Electric Light and Power Company, Memphis, Tenn.

Brush Electric Light and Power Company, Montgomery, Ala.

Brush Electric Light and Power Company, Nashville, Tenn.

Brush Electric Light & Power Company, Niagara Falls, N. Y.

Brush Electric Light and Power Company, 71 Ontario st, Cleveland O.

Brush Electric Light and Power Company, Savannah, Ga.

Brush Electric Light Co. 853 B'way, N. Y.

Brush Electric Light Co. 5 Pemberton sq and 5 Lancaster st, Boston, Mass.

Brush Electric Light Co. 317 Plum st, Cincinnati, Ohio

Brush Electric Light Co. Chattanooga, Tenn.

Brush Electric Light Company, of N. E. 853 B'way, N. Y.

Brush Electric Light Company, Johnson-st, between 20th and 21st st, Philadelphia, Pa.

Brush Electric Light Company, 116 La Salle st, Room 13, Chicago, Ill.

Brush Electric Light Company, Louisville, Ky.

Brush Electric Light Company, 317 Plum st, Cincinnati, Ohio

Brush Electric Light Company, Rochester, N. Y.

Brush Electric Light Company, 81 and 83 Third st, Detroit, Mich.

Brush Electric Light Company, Topeka, Kas.

Brush Electric Light Company, 5 & 7 West Seneca st, Buffalo, N. Y.

Brush Electric Lighting Company, 209 Washington st, Roger's-bdg, Rooms 21 and 22, Boston, Mass.

Digitized by Google

Electric Light Companies—*continued.*

Bullock M. C. 84 to 88 Market-st. Chicago, Ill.

California Electric Light Company, 220 to 226 Jessie-st. E. from 4th-st. San Francisco, Cal.

California Electric Light Co. 17 St. Anne's bdgs, San Francisco, California

Cincinnati Electric & Calcium Light Co. 365 Vine st, Cincinnati, Ohio

Cincinnati Electric Light Co. 161 W. Pearl st, Cincinnati, Ohio.

Colorado Electric Company, Denver Col.

Consolidated Electric Light Co. 55 New Church st, N. Y.

Continental Electric Light Co. Room 48, 115 B'way, N. Y.

Crescent Electric Light & Motive Power Co. 68 Wall, st, N. Y.

Crescent Electric Light & Motor Power Co.
Manager—H. F. Averill, 120 B'way, N. Y.
Capital Stock—$500,000; 50,000 shares

Eastern Electric Light Co. 97 Fulton st, N. Y.

Eastern Electric Manufacturing Co. Middletown, Conn.
Room 99 Boreel Bldg, 115 B'way, N. Y.

Edison Co. for Isolated Lighting
Principal Office—65 5th av, N. Y.
President—Major S. B. Eaton
General Manager—M. F. Moore, Spencer Borden
Manager New England Department—Henry Alden Clark, Baltimore
Agent for Maryland and Western Pennsylvania—George C. Fairbanks
Agent for Ohio—Cleveland

Edison Co. for Isolated Lighting 6 Ledger Building, 6th and Chestnut sts, Philadelphia
Agency—States of Pennsylvania, New Jersey & Delaware

Edison Electric Illuminating Co. of Lawrence, Mass.
President—F. E. Clarke
Secretary—E. H. Lord
Treasurer—James H. Eaton

Edison Electric Illuminating Co. of N. Y.
Principal Office—65 5th av, N. Y.
President—Dr. Norvin Green
Vice-President—Major S. B. Eaton
Secretary—Col. C. Goddard
Treasurer—E. P. Fabbri

EDISON ELECTRIC LIGHT Co.
Principal Office 65 5th Av, N. Y.
President—Dr. Norvin Green
Vice-President—Major S. B. Eaton
Secretary—Col. C. Goddard
Treasurer—E. P. Fabbri

Edison Spanish Colonial Light Co.
Capital Stock—$100,000; 1,000 shares
To work Edison's inventions in Cuba and other Spanish colonies

Electric Illuminating Co. Albany, N. Y.

Electric Light Co. 180 H. st, Washington, D.C.

EXCELSIOR ELECTRIC Co. 68 Duane st, N. Y.
Capital Stock $500,000; 5,000 shares
Inventor & Electrician—W. Hochausen

Evansville Brush Electric Light and Power Co. 205 Upper Third-st, Evansville, Ind.

Electric Light Companies—*continued.*

Fargo Electric Light and Power Company, Fargo, Dakota

Fergus Brush Electric Company, Fergus Falls, Minn.

Grand Rapids Electric Light and Power Company, Grand Rapids, Mich.

HEISLER ELECTRIC LIGHT Co. 809 to 817 South 7th st, St. Louis. *See index to advertisers.*

Higgs Electric Light & Power Co. N. Y.
Capital Stock—$500,000; 100,000 shares
Electrician—Paget Higgs

Hill & Jordan, Columbus, Ga.

Houston Thos. Electric Light Co., 631 Arch, Phila.

Hussey Electric Co. N. Y.
Inventor and Electrician—C. A. Hussey
Chief Promoter—A. S. Dodd

Jablochkoff Electric Lighting Co. 154 Nassau st, N. Y.

Kurczyn Pedro, Rio de Janeiro, Brazil, care W. R. Cassels & Co. Caixa 95

Langley Electric Light Co. Ann Arbor. Mich.
Inventor and Electrician—Prof. J. W. Langley

Leggett, W. W. 88 Griswold-st. Detroit. Mich.

Levett Muller Electric Light Co. 1003 Chestnut st, Phila.

Light & Force Co. Room 11 & 12, 234 B'way, N. Y.

Lugo Dynamo Electric Co., Washington sq, N. Y.
Capital Stock—$100,000; 1,000 shares.
Inventor and Electrician—Ozario Lugo
Chief Promoters & Capitalists—S. L. M. Barlow and Charles G. Francklyn

Markland Electric Light Power Co. 30 Broad st, room 86, N. Y.
Capital Stock—$600,000; 600,000 shares

Metropolitan Electric Light & Power Co. 5 Cortlandt st, N. Y.

Middletown Electric Light Company, Middletown, Ohio

Monopole Electric Light Co. Troy, N. Y.
Owner of patents to Clinton M. Ball and C. A. Seeley.

Mutual Electric Light and Supply Co. 37 Wall st, N. Y.
Capital Stock—$500,000; 200,000 shares
This is the Co. owning C. E. Longs's patents.

N. E. Weston Electric Light Co. 267 Washington st, Boston, Mass.

New York Electric Light Association, 23 Dey st. room 5
Capital Stock—$300,000; 3,000 shares
Inventors—A. Wirsching, Leo Daft
Factory—Greenville, N. J.
Laboratory—32 Centre st, N. Y.
Trustees—W. M. Lendrum, Leo Daft, Hugo Rothschild

New York Electric Light Co. 185 5 av, N. Y.
J. C. Chamberlin manager

Ogden Electric Light Co. Ogden, Utah

Portable Electric Light Co. 79 Water st, Boston

Potter Jotham, care Messrs. Walsh, Hall & Co. Yokohama, Japan

Digitized by Google

Electric Light Companies—*continued.*

Ridall & Ingold, 116 Market-st. Pittsburgh, Pa.
Riddall & Ingold, 116 Market st, Pittsburgh, Pa.
Rocky Mountain Electric Light Company, Salt Lake City, Utah
San Antonio Electric Co. San Antonio, Texas
San Jose Brush Electric Light Co. 284 Santa Clara st, room 9, San Jose, Cal.
Shanghai Electric Company, Shanghai, China
Sheehy, R. J. Norfolk, Va.
Sheridan Electric Light Co. of N. Y. 137 B'way, manufactory 138 Jane st, N. Y.
Capital—$500,000; in 10,000 shares
South-Western Brush Electric Light and Power Company, 38 Union-street, New Orleans, La.
Standard Electric Light Co. 109 Centre-st, N. Y.
Formed to work the patents of A. G. Holcombe
Stockly C. E. 34 Chestnut-street, Cleveland, O.
Sweet John, 124 Dearborn st, Chicago, Ills.
Tucker & Levett, 544 W. 16 st, N. Y.
Union Electric Manufacturing Co., 47 Devonshire st, Boston
President—Parker C. Chandler
Vice-President—Frank W. Jones
Treasurer—Henry C. Andrews
Business Manager—Ralph W. Pope
Superintendent—Charles D. Haskins.
United Globe Electric Light Co. 297 Fifth av, N.Y.
Capital Stock—$6,000,000; 60,000 shares
Inventor & Electrician—E. L. Morse
U.S. Electric Lighting Co. 120 B'way & 414 Sixth av, N. Y.
U.S. Illuminating Co. 90 Chambers st, N. Y.
Van Despoele Electric Light Co. 255 So. Canal st, Chicago, Ills.
Inventor & Electrician—S. J. Van Depoele
Warden O. Henck's Opera House, Cincinnati, Ohio
Western Edison Light Co. Chicago. Controlling the States of Illinois, Iowa and Wisconsin
President-Gen.—Anson Stager
Vice-President—John M. Clark
Treasurer—D. H. Louderbach
General Superintendent—George H. Bliss
Western Electric Light Co. 328 Montgomery st, San Francisco, California.

Electric companies whose certificates of incorporations are filed with the County Clerk for N. Y. Co.

U. S. E. L. Co. June 5th 1878; Fuller Electrical Co. Oct. 2 1878; Edison E. L. Co. Oct. 17 1878; National E. L. & Power Co. Nov. 20 1878; Brush E. L. Co. Sept. 24 1880; Brush Electric Illuminating Co. Feb. 19 1881; Gramme Electrical Co. April 28 1881.

Electric Light Contractors.

F.—Eclairage électrique (Entrepreneurs d').
G.—Electrisches Licht—Contractoren.

Nason Preston C. Franklin, Mass.

Electric Light Fittings Manufacturers and Fitters.

F.—Eclairage électrique (Fab d'appareillage d' et monteurs).
G.—Electrisches Licht—monteure.

Archer, Panivast, & Co. Green st, N. Y.
Boston Electric Co. 550 Washington st, Bosto
Bradley & Hubbard Manufacturing Co. N. Y.
CUMMING & BRINKERHOFF, 218 E. 18th st, N. Y. *See index to advertisers.*
Electrical Supply Co. 109 Liberty st, N. Y.
Mitchell, Vance, & Co. 13th gr. & B'way, N. Y.
Moore Alfred F. 200 & 202 N. 3rd st, Philadelphia, Pa.
UNITED STATES ELECTRIC LIGHTING CO. Equitable bgs, 120 B'way, N. Y.

Electric Light Fixture Makers.

F.—
G.—Artikel für electrische Beleuchtung.

Archer & Pancoast Mfg. Co. 70 Wooster and 67 Greene sts, N. Y.
Arnold A. S. & Co. 1293 B'way, N. Y.
Barker Joseph S. 168 Centre st, N. Y.
Bradley & Hubbard mfg. Co. 21 Barclay and 26 Park pl, N. Y.
Cassidy & Son, 129 Mercer st, N. Y.
Cunningham, James, 151 W 29th st, N. Y.
Donaldson, Joseph 74 E 9th st, N. Y.
Hicks & Smith, 42 S 5th av, N. Y.
Houchin Mfg. Co. 43 Chambers st, N. Y.
Iden & Co., 194, Hester st, N. Y.
Kitchen George H & Co. 23 University pl, N.Y.
Lacey G. S. & Co. 1293 B'way, N. Y.
Mitchell, Vance & Co. 836 B'way, 72 E. 13th and 503 W. 24th sts, N. Y.
Oxley & Giddings, 113 Walker st, N. Y.
Palmer's James F. & Son, 47 University pl, N.Y.
Patterson Co. (Limited) 17 W. Houston st, N. Y.
Schneider, Campbell & Co. 7 Union sq. and 20 E. 15th st, N. Y.
Standard Mfg. Co. 9 Bond st, N. Y.
Titsink & Phillips, 207 Centre st, N. Y.
Travis & Ferry, 140 Greene st, N. Y.
Williams John, 115 E. 13th st, N. Y.

Electric Light Systems.

F.—Eclairage électrique (Systèmes d').
G.—Electrisches Licht—Systeme.

Brush Electric Illuminating Co. of New York, 853 B'way, corner of 14th st, N. Y.
Redman George A. Manager Brush Electric Light Co. 11 Wilders arcade, Rochester, N. Y.

Electric Machines—Dynamo.

F.—Machines Dynamo Electriques.
G.—Dynamo-Maschinen.

Zucker & Levett Chemical Co. 540, 542, 544, & 546 W. 16th st, N. Y.

Digitized by Google

Electric Street Lamps Manufacturers.

F.—
G.—Strassenlampen für electrische Beleuchtung.

SCHOOLEY W. D. Richmond, Ind.

Electric Switch Manufacturers.

F.—Commutateurs (Fab. de).
G.—Electrische Weichen-Fabr.

POST & CO. South West corner Pearl & Elm sts, Cincinnati
SCHOOLEY W. D. Richmond, Ind. *See index to advertisers.*

Electric Works.

F.—
G.—Fabriken zur Ausbeutung der Electricität.

Plumb C. 100 Niagara st, Buffalo, N. Y.

Electrical Contractors and Dealers.

F.—
G.—Electricität—Unternehmer und Händler.

Fleischmann A. F. 27 S. 10th st, Phila. Pa.

Electrical Glass Manufacturers and Dealers.

F.—Verrerie de Chimie.
G.—Chemisches Glas.

Crystal Glass Works, Wheeling, W. Va.
De la Chapelle E. & Co. So Brooklyn
Gleason E. P. Manufacturing Co. Houston and Mercer sts, N. Y.
Hibber & Ranock, Prince & Concord sts, Brooklyn
Menden Flint Glass Works, G. Hatch agent, Meriden, Conn.
New Bedford Mass. Glass Works, F. S. Sherley
N. E. Glass Works (Libby agent), Cambridge, Mass.
Union Glass Works (Gregory agent), Boston

Electrical Instrument Manufacturers.

F.—Appareils Electriques.
G.—Electrische Instrumente.

Ahlstrom Oscar G. 162 William st, N. Y.
American Electric Co. 31 & 30 Chesnut-street, Phila. Penn.
Ansonia Brass & Copper Company, Ansonia, Conn.
Arnoux & Hochhausen Electric Co. 227 E. 20th st, N. Y.
Bahr & Zahn, 114 Centre st, N. Y.
Bergmann & Co. 108 Wooster st, N. Y.
Bosch Bros. 29 Mechanic st, Newark, N. J.
Boyd John C. 203 W. 49th st, N. Y.
BOWEN WM. J. Nerwalk, Ohio. *See index to advertisers.*
Boyle Jeffray C. 63 Fulton st, N. Y.
Brown, Carlisle & Co. 180 Friendship st, Prov. R. I.

Electrical Instrument Manfs.—*continued.*

Buell M. A. & Sons, 76 Frankfort st, Cleveland
Bunnell & Co. J. H. 112 Liberty st, N. Y.
Burnap William H. 259 W. 27th st, N. Y.
California Electrical Works, 134 Jutter st, San Francisco, Cal.
Central Pa. Telephone Supply Co. Williamsport, Pa.
Cheever Electric Belt Co. 123 Washington st, Chicago, Ills.
Chicago Electric Manufacturing Co. 4 Rush st, Chicago, Ills.
Clark L. W. 91 Westminster st, Providence, R. I.
Cornish T. E. 1111 Chesnut st, Phila. Pa.
Cumming & Brinkerhoff, 212 E. 18th st, N. Y.
Dakin E. A. 219 Sansom st, San Francisco, Cal.
Detroit Electrical Works, Detroit, Mich, Boston, Mass.
Eastern Electric Mfg. Co. 115 B'way, N. Y.
Eaton Mrs. E. A. 111 Adams st, Chicago, Ills.
Edison Electric Tube Co. 255 Pearl st, N. Y.
Electric Mfg. Co. (The) 1020 Arch st, Phila. Pa.
Electric Tube Co. 65 Washn. st, N. Y.
Electrical Supply Company, Ansonia, Conn.
Electro-Dynamic Co. 121 So. 3rd st, Phila. Pa.
Electro Medical Mfg. Co. 38 Union sq, N. Y.
Fernald G. M. D. 12 Brattle st, Boston, Mass.
Fitch Frederick K. 40 Cortlandt st, N. Y.
Fix William P. r. 100 Wooster st, N. Y.
Fleischmann A. F. 27 S. 10th st, Phila. Pa.
Flemming O. 1009 arch, Phila.
Folken J. H. A. & Bro. 118 Montgomery st. San Francisco, Cal.
Frank, F. S. 167½ Wood st, Pittsburgh, Pa.
Freeman Brothers, 37 Centre st, N. Y.
Fuller Electrical Co. 44 E. 14th st, N. Y.
Fuller, F. W. 419 Sacramento st, San Francisco, Cal.
Fuller S. W. 22 Milk st, Boston, Mass.
Galvano Faradic Mfg. Co. 288 4th av, N. Y.
Glass J. 1413 Chesnut st, Phila. Pa.
Griffin John L. 265 B'way, N. Y.
Guch J. C. 18 Market st, San Francisco Cal.
Gueraut George M. 41 Centre st, N. Y.
Hall E. K. & Co. 163 Albany st, Boston, Mass.
Hampton Bros. 607 Mission st, San Francisco, Cal.
Hanson & Van Winkle 236 Market st, Newark, N. J.
Harris A. C. & Co. Louisville, Ky.
Hatteroth & Russ, 321 Kearney st, San Francisco, Cal.
Heylmann C. J. 298 Wt. Lake st, Chicago, Ills.
Hoenack Paul, 193 Worth st, N. Y.
Holtzer, C. W. Brookline, Boston, Mass.
Irsch Francis, 204 E. 23rd st, N. Y.
Jack, J. C. 18 Market st, San Francisco, Cal.
Jones C. E. & Bro. Carlisle bldgs. cor. 4th & Walnut sts, Cincinnati.
Kahl A. & Co. 13 Mercer st, Balt, Md.
Keim John H. 192 B'way, N. Y.
KIDDER JEROME, Mfg. Co. 820 B'way, N. Y.
Lannert J. A. 31 Prospect st, Cleveland, Ohio.
Lelanche Battery Co. 149 W. 18th st, N. Y.
Leuschner E. 189 Vine st, Cincinnati, Ohio
Longstreet John H. 9 Barclay st, N. Y.

Digitized by Google

Electrical Instrument Manfs.—*continued.*

Lyman & Schorndorfer, 36 So. Water-st, Cleveland, Ohio.
Mathews D. S. D. & Co. 84 5th ave. Chicago, Ills.
Maxim Electric Light & Power Co. 617 Arch st, Phila.
Meyer Curt W. 11 Dey St. B'way, N. Y.
North-Western Electric Gas Lighting Company, 77 Clark st, Chicago, Ills.
N. Y. Dynamo Electric Manufacturing Co. 907 B'wry, N. Y.
Partrick & Carter, 114 South 2nd st, Phila. Pa.
Patterson John M. 91 Grant st, Pittsburgh, Pa.
Pearce & Jones, 66 John st, N. Y.
Pond Electric Signal Co. 130 Fulton st, N. Y.
Pool, A. A. & Co. 55 N. J. Rl. Rd. av.
POST & CO. Cincinnati, Ohio. *See index to advertisers.*
Rauda Otto, 194 Fulton st, N. Y.
Raynor Hiram M. 25 Bond st, N. Y. platinum foil & wire
Reitz C. & Snean E. J. Indianapolis, Ind.
Richardson A. M. & Co. 104 W. 42nd st, N. Y.
Riehl & Hasse, Race Cor. Longworth, Cincinnati, Ohio
Royce & Mareau, 1408 Penna. av. Washgn. D.C.
Rousseau D. Fourth av, nr. 133th st, N. Y.; Office 181 B'way bet. Courtland & Dey sts
SCHOOLEY W. D. Richmond, Indiana
Shiras J. O. 13 Wt. 4th st, Cincinnati, Ohio
Smith T. J., 195 B'way, N. Y.
Smith T. J. 81 Third st (2 doors from B'way), Brooklyn, E.D.
Smith & Khodes Electric Co. Ld. 95 5th av. N. Y.
Smoltz Wm. 420 Montgomery st, San Francisco, Cal.
Sneau E. Indianapolis, Inda.
Stearns & George 29 Pearl st, Boston, Mass.
Stendel, R. A. 117 Clark st, Chicago, Ills.
Telegraph Supply Company, 71 Ontario st, Cleveland, Ohio.
Thau Henry, 130 Fulton st, N. Y.
Thomson Houston Electric Light Co. 31.30 Chestnut st, Phila.
TILLOTSON L. G. & Co. 5 & 7 Dey st, N. Y.
Tobey & Kinoman, 145 B'way & 86 Liberty st, N. Y.
Union Electric Manufacturing Co. 9 Bond st, N.Y.
Venable E. W. 195 B'way, N. Y.
Wagner & Co. 14 Jackson st, Chicago, Ills.
Wagner Emil W. 36 John st, N. Y.
Wagner E. W. 206 Race st, Cincinnati, Ohio
Waite & Bartlett, 204 E. 23rd st, N. Y.
Weakley J. W. jr. 192 Wt. 5th st, Cincinnati, Ohio.
Western Electric Manufacturing Co. 220 Kinzie st, Chicago, Ills.
Western Electric Mfg. Co. 63 New Church st, N. Y.
Weston Edward, 23 Plane st, Newark, N. J.
Weston E. 288 Washington st, Newark, N. J.
Wheeler E. 149 Lasalle st, Chicago, Ills.
Will & Finck, 769 Market st, San Francisco, Cal.
Zeuschner E. 189 Vine st, Cincinnati, Ohio

Electrical Periodicals & Publications.

See Scientific Newspapers, Periodicals & Publications.

Electrical Schools.

F.—
G.—Schulen der Electricität.

College of Electrical Engineering, Henry Greer, Agent, 122 E. 26th st, N. Y.
Columbia College School of Mines, 49th st, 4th av. N. Y.
Harvard University, scientific course, Cambridge st, Mass.
Princetown, N. J. scientific course
Stevens' Institute of Technology, Hoboken, N. J.
Thompson's Business and Telegraphic College, 4th av. opposite the Cooper Union, N. Y.
Union Telegraph Instruction Co. (The) 3 Park row, N. Y. Branch office in Brooklyn
Western School of Telegraphy (The) Janesville, Wis.
Yale College, scientific course, New Haven, Conn.

Electrical Supplies.

F.—
G.—Lieferanten in electrischen Artikeln.

Ahlstrom O. G. 162 William st, N. Y.
American Electric Co. New Britain, Conn.
Bahr & Zahn, 108 Liberty st, N. Y.
Bail Clinton M. Troy st, N. Y.
Bell Alexander Graham, Washington st, D. C.
Bonwill Wm. G. A. 1719 Locust st, Philadelphia
BOSTON ELECTRIC CO. 550 Washington st, Boston, Mass.
BOWEN WM. J. Norwalk, Ohio. *See index to advertisers.*
Bunnell J. H. & Co. 112 Liberty st, N. Y.
CUMMING & BRINKERHOFF, 218 East 18th st, N. Y. *See index to advertisers.*
DAVIS & WATTS, Baltimore, Med. *See index to advertisers.*
Dodson Wilson P. Philadelphia.
Dolbear A. Emmerson, Somerville st, Mass.
Douglas F. A. over 28 Main st, Lockport, N. Y.
Dreyfus Louis G. 45 West 13th st, N. Y.
Edison Thomas A., N. Y.
Ege Alex. H. Mechanicsburg, Pa.
Eldredge J. Morgan, Philadelphia.
Electric Purifier Co. New Haven, Conn.
Electric-Medical Mfg. Co. 38 Union sq, N. Y.
Electrical Supply Co. 109 Liberty st, N. Y. Mace, Thos. agent; factory Ansonia, Conn.
Electro-Dynamic Co. 2009 Pine st, Philadelphia.
Electro-Graphic Co. 2 Dutch st, N. Y.
Goodrich A. B. 180 Main st, Buffalo, N. Y.
Gray Elisha, Highland park, Ill.
Harbert & Son, 86 La Salle st, Chicago.
Hasse Robert, Indianapolis, Ind.
Hellogg Milo G. 220 Kinzie st, Chicago, Ill.
Hirsh Joseph M. Chicago, Ill.
Hubbard Charles W. Boston, Mass.
Jones C. E. & Bro. 51 West Fourth st, Cincinnati, Ohio.

Digitized by Google

Electrical Supplies—*continued.*

Leclanché Battery Co. 149 W. 18th st, N. Y.
Mason Volney W. & Co. Providence, R. I.
Michels John, N. Y.
N. Y. Electric Light Association, 23 Dey st, N Y.
Partz August, Philadelphia, Pa.
Patrick & Carter, 114 South 2nd st, Phila. Pa.
Philips William J. 2030 Delancy pl, Phila.
POST & CO. Cincinnati, Ohio. *See index to advertisers.*
REDDING JEROME & CO. 30 Hanover st, Boston.
Rubber (The) Comb & Jewellery Co. 33 Mercer st, N. Y.
Schmanser Dr. Theodore, Allegany City, Pa.
SCHOOLEY W. D. Richmond, Ind. *See index to advertisers.*
Serrel Edw. W. jr. N. Y.
Smithsonian Institution, Washington, D. C.
Standard Electric Light Co. 211 Centre st, N. Y.
TILLOTSON L. G. & CO. 5 & 7 Dey st, N. Y. Factory 139, 141, & 143 Centre st.
TOBEY & KINSMAN, 145 B'way, & 86 Liberty st, N. Y.
Union Electric Mfg. Co. 7 & 9 Bond st, N, Y.
U. S. Electric Lighting Co. 120 B'way, N. Y.
United States Signal Office, Washington, D. C.
Western Electric Co. Chicago, N.Y, Indianapolis,
Weston Electric Light Co. Newark, N. J.
White House Mills, Hoosac, N. Y.

Electricians.

F.—Electriciens.
G.—Electricitäts-Kundige.

Abernethy J. P. Supt. Tel. Cleveland, Ohio.
Agnew T. J. Philadelphia, Pa.
Airey A. L. Cleveland, Ohio
Allen L. M. Duxbury, Mass.
Allison Wm. C.. Philadelphia, Pa.
Am. Electric Co. 58 New Church st, N. Y.
Amet E. H. La Grange, Ills.
Andrews C. N. San Francisco, Cal.
Anson E. M. 195 B'way, N. Y.
Archibald L. B. Supt. Gov. R'way, Charlottetown, P. E. J.
Arnold J. G. Worcester, Mass.
Atterbury J. R. Pittsburg. Pa.
Baader & Weber, 242 Broome st, N. Y.
Bain Forée, 721 Hennepin av. Minneapolis, Minn.
Baker G. E. 195 B'way, N. Y.
Baldwin A. A. Ionia, Mic.
Ball C. M. Troy
Banta W. E. Springfield, Ohio
Bartlett F. C. 336 W. 56th st, N. Y.
Batchelor E. S. Pittsburg, Pa.
Bates D. H. 195 B'way, N. Y.
Beardslee G. W. 314 Green av. Brooklyn
Beecher L. Medina, N.Y.
Been F. H. Newark, N. J.
Beeson W. Miles City, Montana
Bell V. Minneapolis, Minn.
Benjamin J. B., N. Y.

Electricians—*continued.*

Berliner J. Boston, Mass.
Bernstein A., N. Y.
Betts W. Cable Français, St. Pierrè et Miquelou
Bless G. H. Pittsfield, Mass.
Bogart A. L. Jamaica, N. Y.
BOGART A. L. 22 Union square, N. Y. *See index to advertisers.*
BOGART S. S. 195 B'way, N. Y.
Borden T. Fall River, Mass.
Bossard August, 7 Frankfort st, N. Y.
BOWEN WM. J. Norwalk, Ohio. *See index to advertisers.*
Bowers G. E. Fitchburg, Mass.
Bradley C. T., N. Y.
Breckenbridge H. W. Providence, R. I.
Brennan Thomas, 195 B'way, N. Y.
Brewer H. J., N. Y.
Brick M. 195 B'way, N. Y.
Brinckman A. Astoria, N. Y.
BRINKERHOFF C. M. 219 E. 18th st, N. Y.
Brooks, D. Philadelphia, Pa.
Brower, H. J. 195 B'way, N. Y.
Brower H. J. Brooklyn, N. Y.
Brown A. S. 135 B'way, N. Y.
Brown J. W. Augusta, Geo.
Brush C. F. Cleveland, Ohio.
Buckingham C. L. Elizabeth, N. J.
Buell Charles E. Washington, D. C.
Bunnell J. H. 112 Liberty st, N. Y.
Burger Franz, Washington, D. C.
Burger F. H. Plainfield, N. J.
Burghardt H. G. 237 W. 4th st, N. Y.
Burn T. Chicago, Ills.
Burnap W. H. 259 W. 27th st, N. Y.
Candee W. D. Brooklyn, N. Y.
Capewell W. H. Philadelphia, Pa.
Carney M. J. Toledo, Ohio.
Casebolt Hy. San Francisco, Cal.
Catlin F. 195 B'way. N. Y.
Chambers J. C. Cincinnati, Ohio
Chapman W. H. Middlebury, Vt.
Chase, H. A. Lynn, Mass.
Cheever C. A., N. Y.
Childs W. A. Englewood, N. J.
Chinnock Charles E. Met. Tel. Co. 196 B'way, N.Y
Clark H. A. Boston, Mass.
Clark J. W. Etna, Ohio.
Clark W. C. Portland, Me.
Cleland Thomas, 38 Union sq, N. Y.
Collins Edwin W., W. U. T. Co. Cleveland, O.
Connelly J. H. Pittsburg, Pa.
Cooley C. A. N. Britain, Ct.
Cowles E. H. Cleveland. Ohio
Coy G. W. Milford, Ct.
Cozzens H. W. Newport, R. I.
Craig J. A. I. Montreal, Canada
Crain Mark D. St. Louis
Cummings E. F. 195 B'way, N. Y,
CUMMING GEORGE 219 E. 18th st, N. Y.
Cumming Warder, Supt. Mo. Pac. R'way. Sedalia, Mo.
Curtis L. E. 120 B'way, N. Y.
Cushing F. W. 195 B'way, N. Y.

Digitized by Google

Electricians—*continued.*

Cuttress Charles, Duxbury, Mass.
Daft L. Greenville, N. J.
David T. B. A. W.N.T. Co. Pittsburgh
Davis C. H. Washington st, N. Y.
Davis I. A. Philadelphia, Pa.
Denver W. J. Springfield, Mass.
Dewar D. Indianapolis, Ind.
Dickerson E. N. jr. N. Y.
Diehl P. Elizabeth, N. J.
Dillore R. F. Savannah, Geo.
D'Infreville Geo. 195 B'way, N. Y.
Dion Charles, Montreal, Canada
Dods P. 385 Bridge st, Brooklyn, N. Y.
Dolan Thos. 195 B'way, N. Y.
Douglas F. A. over 28 Main st, Lockport, N.Y.
Dowd P. A. 31 Milk st, Boston
Downer A. S. 8 Broad st, N. Y.
Downer D. R. Produce Exchange, N. Y.
Downs F. E. Downs, 550 Washn. st, Boston, Mass.
Drawbaugh D. Eberly's Mills, Cumberland City, Pa
Driver Albert J. Galveston, Tex. Mex. Tel. Co. N. Y.
Du Rois J. T. Haddonfield, N. J.
Duggau P. J. Boston, Mass.
Dunlap S. M. Cincinnatti, O.
Dusenbury J. M. Buffalo, N. Y.
Duxbury J. W. Providence, R. I.
Depoele Van C. J. Chicago, Ills.
Dwight J. H. 195 B'ways N. Y.
Dyer R. N., N. Y.
Eckert T. T. 195 B'way, N. Y.
Eckert Wm. H. 196 B'way, N. Y.
Eddy A. H. Hartford, Ct.
Edison Thomas A. 104 Goerck st, N. Y.
Edwards E. A. Cincinnati, Ohio
Edwards & Co. 41 Beaver & Fourth av. c 138th st, N. Y.
EINBERGLER RUDOLF, N. Y.
Eldridge S. W. Boston, Mass.
Ellett Geo. C. Ogden, Utah
Elms Joseph, Boston, Mass.
En Holm O. A. 580 Lorimer st, Brooklyn
Ewing C. Washington, D. C.
Excelsior Electric Co. 66 Duane st, N. Y.
Fahnestock John, 170 S. Elliot pl, Brooklyn
Fairchild Sidney B. St. Louis
Fangon Dr. 193 6th av, N. Y.
Farmer Moses G. Danville, N. Y.
Farrington G. K. Kerksville, Mo.
Fawcett J. 589 Halsey st, Brooklyn
Fenn, Joseph E. Circuit Mgr. W. N. T. 195 B'way, N. Y.
Field Stephen D. 195 B'way, N. Y.
Findley D. L. 195 B'way, N. Y.
Finger L. Melrose, Mass.
Firman L. B. Chicago, Ills.
Fiser F. E. Detroit, Mich.
Fisher T. H. 195 B'way, N. Y.
Flemming O. 1009 Arch st, Phila. Pa.
Flint N. M. 200 Joralemon, Brooklyn
Freeman I. P. Chicago, Ills.
French W. A. Camden, N. J.

Electricians—*continued.*

Friedel C., Madison, Wis.
Fuller J. B. N.Y.
Fulier Electrical Co. 44 E. 14th st (Wheeler and Wilson bgs,) N. Y.
Garber J. L. Greenville, Ohio
Gardineer G. W. 135 B'way, N. Y.
Garrett Oscar, Boston, Mass.
Gassett O. Boston, Mass.
Giles J. To Bend, Indiana
Gillelaud I. F. Indianapolis, Ind.
Goebel C. H. Phila. Pa.
Gorn H. A. N. Y.
Goss L. W. Cincinnati, Ohio
Gould A. T. Cincinnati, Ohio
Grandy D. B. Washn. D. C.
Greer Henry, 122 E. 26th st, N. Y.
Green Henry, 122 E. 26 gr. N. Y.
Green W. J. Washington, D. C.
Greenfield J. T. Brooklyn, N. Y.
Gregory H. T. Chelsea, Mass.
Guest J. H. Brooklyn, N. Y.
Gullberg C. Jersey City, N. J.
Haight G. E. Hartford, Ct.
Hale W. B. Washington, D. C.
Halkyard W. Providence R. I.
Hamblet James, manager, Times Service W. N. Telegraph Co., N. Y.
Hamilton George A. 195 B'way, N. Y.
Hardy M. A. Newport, R. I.
Harris F. E. 54 Bromfield st, Boston, Mass.
Haskins Charles, 9 Bond st, N. Y.
Haskins C. H. Melwaukie, Wis.
Haveland A. J. Fort Dodge, Iowa
Hayes C. H. Ansonia, Ct.
HEILER C. St. Louis, Mo.
Henry Lucy A. 657 Sixth av, N. Y.
Herman L. Union st, N. J.
Hieatzman A. H., Baltimore, Md.
Higgs Paget, 63 Kent st, Brooklyn
Hill E. A. Chicago, Ills.
Hill Eusebia M. 300 W. 31st st, N. Y.
Hinds Charles H. 418 W. 27th st, N. Y.
HOCKHAUSEN W. N. Y.
Hoenack C. P. N. Y.
Hoevenbergh H. Van, Elizabeth, N. J.
Holcomb A. G. Danielsonville, Ct.
Holcomb A. G. Granby, Ct.
Holt A. J. Gd. Rapids, Mich.
Hopkins G. M. N. Y.
HOUSTON E. J. Phila. Pa.
Howell E. F. 195 B'way N. Y.
Howser G. W. Chicago, Ills.
Hoyt W. H. 195 B'way, N. Y.
Hubbard C. W. Boston, Mass.
Hudson J. E. 95 Milk st, Boston, Mass.
Humans W. Cambridgeport, Mass.
Hunt W. T. D. N. Britain, Ct.
Hurston John, N. Y.
Hussey C. A., N. Y.
Irwin J. H. Morton, Pa.
Jenkins P. O. Washington, D. C.
Jenney C. D. To Bend, Ind.
Jennings C. C. Buffalo, N. Y.

Digitized by Google

Electricians—*continued.*

Johnson E. H. 65 Fifth av. N. Y.
Jones F. W. 9 Bond st, N. Y.
Judah Charles S. 154 Nassau st, N. Y.
Karr J. 832 B'way, N. Y.
Keith N. T. 41 Liberty st, N. Y.
Kellogg M. G. Hyde Park, Ills.
Kelly J. R. F. Brooklyn, N. Y.
Kelly Thomas, Boston, Mass.
Kennedy T. G. 195 B'way, N. Y.
Kettell J. F. Worcester, Mass.
Kinch T. G. Albany st, N. Y.
King I. Ansonia, Ct.
King J. B. Brooklyn, N. Y.
Kitee Isidor Cincinnati, Ohio
Knudson A. A. 39 Nassau st, N. Y.
Lake S. D. J. City, N. J.
Lakin J. A. Westfield, Mass.
Laland H. W. So. Framingham, Mass.
Landy T. J. 195 B'way, N. Y
Lane T. A. Boston Mass.
Larish J. W. Buffalo, N. Y.
Lawson G. W. Brooklyn, N. Y.
Lazelle & Walker, 174 Centre st, N. Y.
Lealy W. J. 195 B'way. N. Y.
Leavitt John W. 76 Wall & 118 E. 52d st, N. Y.
Leslie Edward A. 135 B'way, N. Y.
Levison Wallace Gould, 115 Nassau st, N. Y.
Linton H. Alleghany, Pa.
Little G. Passaic, N. J.
Littlefield W. D. So. Springfield, Mo.
Loane Hy. E. Baltimore, Md.
Lockwood R. M. & Son, 22 New Church st, N.Y.
Lockwood T. D. Amn. Bell Tel. Co. Boston, Mass.
Lockwood T. D., N. Y.
Lockwood T. J. 95 Milk st, Boston
Lockwood Wm. C. Brooklyn, N. Y.
Longstreet J. H. Hoboken, N. J.
Lounds John H. 138 E. 28th st, N. Y.
Low J. B. Pulaski, N. Y.
Lüngen A., N. Y.
Lytle H. B. Boston, Mass.
Mahon A. Washington, D. C.
Malia W. J. Meeting st, Charleston. S. C.
Mahoney J. A. Washington, D. C.
Markland W. H. Brooklyn, N. Y.
Marx M. 4 East 14th st, N. Y.
Masten V. M. Rochester, N. Y.
Matney W. D. Harvell, Ills.
Mayer William jr. 195 B'way, N. Y.
Maynard G. C. Washington, D.C.
McCulloh C. F. Baltimore, Md.
McDevitt W. Philadelphia, Pa.
McEnrae W. H. 195 B'way, N. Y.
McGrew A. F. San Francisco, Cal.
Means C. J. Boston, Mass.
Mensing J. D. A. Rochester, N. Y.
Meyer Curt W. 11 Dey st, N. Y.
Miller T. N. Chillicothe, Ohio
Milliken Geo. F. Boston, Mass.
Mitchell D. B. 195 B'way, N. Y.
Moffat R. R. Brooklyn, N. Y.
Moore A. M. 220 Devonshire st, Boston.
Moore F. L. 30 Hooker ave. Poughkeeprie, N.Y.

Electricians—*continued.*

Morau P. Philadelphia, Pa.
Morris R. H. 195 B'way, & mech. engineer, N.Y.
Mott G. T. Philadelphia, Pa.
Muller J. H. 540 West 16th st, N. Y.
Nason Preston C. Franklin, Mass.
Newton O. K. 195 B'way, N. Y.
Nichols J. V. Brooklyn. N. Y.
Nicholson H. C. Kenton Ky.
Nourse F. O. Boston, Mass.
Odell J. B. Chicago, Ills.
O'Sullivan M. F. Baltimore, Md.
Palmer, E. G. 74 Spring st, Hartford, Ct.
Palmer Nathan, 78th Fourth av, N. Y.
Park A. F. W. Philadelphia, Pa.
Parker E. D. Salina, Kans.
Parker William S. 216 Centre st, N. Y.
Parsons Hy. 23 Plane st, Newark, N. J.
Patee T. H. Greencastle, Inda.
Patterson W. Idlewood, Pa.
Patterson Wm. R. Chicago, Ills.
Paul W. Ansonia, Ct.
Peck C. C. Middlebury, Vt.
Peyton W. J. Washington, D. C.
Phillips A. D. 82 Academy st, Jersey City, N. J.
Phillips J. H. 238 6th st, N. Y.
Phillips W. P. Washn. D. C.
Phillips W. P. Washn. st, N. Y.
Phelps W. P. Philadelphia, Pa.
Pickford H. Chelsea, Mass.
Pierson E. M. (Supt. for Tillotson & Co.) 143 Centre st, N. Y.
Pippitt Abner R. St. Louis
Plumb C. 100 Niagara st, Buffalo, N. Y.
Plush Dr. S. M. Philadelphia Telegraph Co. Philadelphia, Pa.
Pond C. H., N. Y.
Pope F. L. Hartford, Ct.
Pope Frank L. 32 Park pl, N. Y.
Pope R. W. 9 Bond st, N. Y.
Pope W. H. Murray & Church sts, N. Y
Pratt L. A. Rochester, N. Y.
Pratt R. J. Troy, N. Y.
Prescott George B. jr. 195 B'way, N. Y.
Prescott, G. B. 7 Dey st, N. Y.
Prescott George B. snr. 20 Fifth av, N. Y.
Prooch C. 109 Liberty st, N. Y.
Prosser T. T. Chicago, Ills.
Pulvermacher Galvanic Co. 265 & 1164 B'way, N.Y
Putnam, T. A. B., N. Y.
Rae F. B. San Francisco, Cal.
Rauda Otto 131 William st, N. Y.
Randall Charles A. 113 Fulton st, N. Y.
Raymond A. R. 432 Walnut st, Philadelphia, Pa.
Raynor H. M. 25 Bond st, N. Y.
Redding J. Malden, N. Y.
Redding H. Everett, Mass.
REDDING M. H. 8 Broad st, N. Y.
Rhodes T. H. Brooklyn, N. Y.
Rice D. H. & L. C. Lowell, Mass.
Richards J. E. Cedar Keys, Flda.
Richmond F. E. Springfield, Mass.
Rogers J. H. Washington, D. C.
Roome H. C. Jersey City, N. J.
Ross C. W. Columbus, Ohio

Digitized by Google

Electricians—*continued.*
Rudd C. H. Evanston, Ills.
Runkel Henry G. 21 E. 15th st, N. Y.
Sabine, J. B. 195 B'way, N. Y.
Sabin J. I. San Francisco, Cal.
Sacket F. G. Knox, Pa.
San Antonio Electric Co. San Antonio, Texas
San Jose Brush Electric Light Co. 284 Santa Clara st, room 9, San Jose, Cal.
Sarcia Jules, 5 Tribune bdg, N. Y.
Sawyer William E. 61 B'way, N. Y.
Sawyer Wm. H. Providence, R.I.
Sawyer W. W. Springfield, Mass.
SCHOOLEY W. D. Richmond, Indiana
Schuyler S. D. 64 Cedar st, N. Y.
Scott George B. 195 B'way, N. Y.
Scott G. B. Brooklyn, N. Y.
Scribner E. Chas. Chicago, Illinois.
Sebillot A. M. G. Denver, Col.
See I. W. Hamilton, Ohio
Seeley H. W. N. Y.
Selden C. Toledo, Ohio
Sesson H. D. Mell River, Mass.
Sexaner L. Brooklyn, N. Y.
Shaw F. Englewood, N. J.
Sheridan H. B. Cleveland, Ohio
Sink A. E. 195 B'way, N. Y.
Slattery M. M. M. N. Y.
Small C. H. G. 195 B'way, N. Y.
Small C. S. H. 989 Bergen st, Brooklyn, N. Y.
Smith Charles T. 195 B'way, N. Y.
Smith F. S. 40 Pearl st, Boston, Mass.
Smith G. Astoria, N. Y.
Smith Gerritt H. 195 B'way, N. Y.
Smith T. J. 195 B'way, N. Y.
Smith J. B. 57 Prospect pl, Brooklyn
Smith J. G. Hackensack, N. J.
Spellier L. H. Doylestown, Pa.
Spice R. 336 Halsey st, Brooklyn, N. Y.
Stammers Henry E. 142 W. 38th st, N. Y.
Starr, E. T. Phila. Pa.
Stearns Jos. B. Boston, Mass.
Stephenson R. G. 195 B'way, N. Y.
Stieringer L. N. Y.
Stitdorf H. 174 Worth st, N. Y.
Stover J. W. Newton, Mass.
Strong H. C. Chicago, Ills.
Summers Charles H., W. U. T. Co. Chicago, Ills.
Sweet D. F. Hastings, Mich.
Swift Lt. James A. Georgetown, D.C.
Talbot, C. N., N. Y.
Taltarall T. R. 195 B'way, N. Y.
Taucke W. C., N. Y.
Taylor Jas. Ansonia, Ct.
Taylor J. 243 Foulton st, Brooklyn
Teal B. T. Philadelphia, Pa.
Thau H. 126 Fulton st, N. Y.
Thomas H. 353 Wt. 35th st, N. Y.
Thompson W. Cutchoque, N. Y.
Thompson B. Toledo, Ohio
Thompson E. N. Britain Ct.
Thornberry H. T. Winona, Minnesota
McTighe, J. J. Pittsburg, Pa.
Tisdale Chas. D. Boston, Mass.
Tobin T. J. 195 B'way, N. Y.

Electricians—*continued.*
Topliff John H. St. Louis
Tregoning I. Philadelphia, Pa.
Tudor H. C. Baltimore Ma.
Turner Saml. Cincinnati, Ohio.
Twiss G. H. Columbus, Ohio
Tyne Albert Evan, St. Louis
Upton F. R. Menlo Park, N. J.
Vail T. W. Boston, Mass.
Vander Weyde P. H. Md. Inst. Cooper Union
Veller J. C. 2105 2nd av, N. Y.
Venable E. W. 195 B'way, N. Y.
Voelker Wm. L. Morton, Pa.
Wadsworth George H. General Manager, Sheridan Electric Light Co. Cleveland, Ohio
Waite H. E. 204 E. 23rd st, N. Y.
Walter H. Cincinnati, Ohio
Waring B. S. Pittsburgh, Pa.
Warren H. V. Marion, Iowa
Waterhouse A. G. 120 B'way, N. Y.
Watkins F. L. 31 Milk st, Boston, Mass.
Watson T. A. Everett, Mass.
Weakley jr. J. W. Bond Hill, Ohio.
Weaver Eph. E. 820 Capital st, Phila. Pa.
Weitz G. G. Boston, Mass.
Weston Ed. 23 Plane st, Newark, N. J.
Whalen W. D. Howel, Mich.
Wheeler A. Concord, Mass.
Wheeler W. Concord, Mass.
Whiting W. H. H. Chelsea, Mass.
Wilkins E. Ward 114 802nd st, Phila. Pa.
Williams T. W. Milwaukie, Wis.
Wittatowsky A. F. L. Ann Arbor, Mich.
W. N. Tel. Co. Cincinnatti, O.
W. N. Tel. Co. St. Louis
Wolfe L. W. & Co. 120 South 14th st, cor Douglas, Omaha, Neb.
Wood J. J. 126 Cambridge Pl, Brooklyn
Woodfil J. R. Aurora, Ills.
Woolley L. G. Mendon, Mich.
Woolson O. C. Newark, N. J.
Wright John E. 135 B'way, N. Y.
Young Saml. Lowell, Mass.

Electricians—Authors.
F.—Electriciens—Auteurs.
G.—
Kundson A. A. 39 Nassau st, N. Y.
Pope Frank L. 32 Park pl. N. Y.
Rae Frank B. San Francisco, Cal.
Small C. S. H. 195 B'way, N. Y.
Summers Char. H., W. U. Tel. Co. Chicago.

Electro-Magneto Machines.
F.—Machines électro-magnetiques.
G.—Galvanische Maschinen.
Wallace & Sons, 89 Chambers & 71 Reade sts, N.Y.

Electro-Medical Apparatus Makers.
F.—Appareils Médicaux (Fab. de).
G.—Magnetische Heilapparate.
Berge J. & H. 95 John & 191 G'wich st, N. Y.
Goodrich A. B. 180 Main st, Buffalo, N. Y.
KIDDER JEROME, 820 B'way, N. Y. *See index to advertisers.*
Wagner E. W. 36 John st, N. Y.

Digitized by Google

Electro Motor Manufacturers.

F.—Electro-moteurs (Fab. de).
G.—Electrische Motors.

ELECTRO (The) DYNAMIC CO. Phila. Pa. *See index to advertisers.*
UNITED STATES (The) ELECTRIC LIGHTING CO. 120 B'way, N. Y. *See index to advertisers.*

Electropaths.

F.—
G.—

Graham Malcomb M. D. Momence, Illinois.
Green S. W. M. D. Norwalk, Ohio.

Electro-Platers.

See Platers.

Electro Silicon Manufacturers.

F.—
G.—

Electro Silicon Co. 72 John st, N. Y.

Electroliers and Chandeliers.

F.—Electroliers (Fab. d').
G.—Candalaber für Electrische Lampen

Almy H. S. & Co. 42 Park pl, N. Y.
Automatic Gas Lamp & Lighting Co. 59 Cedar st, N. Y.
Berendsohn Siegmund, 86 Fulton st, N. Y.
Bildersee Barnett, 40 Murray st, N. Y.
Blackman Ebenezer, 93 Maiden la, N. Y.
Botsford & Lacy, 52 Park pl, N. Y.
Bradley & Hubbard Mfg. Co. 21 Barclay & 26 Park pl, N. Y.
Bristol Brass & Clock Co. 32 Warren & Forrestville, Ct.
Burrel's D., Sons, 120 Chambers st, N. Y.
Catlin Seth C. 60 Duane st, N. Y.
Coleman Henrietta, 40 Ludlow st, N. Y.
Covell, Charles H. 1150 B'way, N. Y.
Craighead & Elwell Mfg. Co. 33 Barclay st, N. Y.
Cuche Chas. 11 E. 14th & r 122 E. 11th st, N. Y.
Dardonville J. 136 E. 13th & 37 E. 18th st, N. Y.
Doane & Wellington Mfg. Co. 496 Cherry st, N.Y.
Donnell J. F. & Co. 822 B'way, N. Y.
Evans Fred. & Co. 44 Park pl, N. Y.
Fell Wm. S. & Co. 20 College pl, N. Y.
Gallinger & Co. 36 Barclay st, N. Y.
Greenberg Solomon, 323 E. Houston st, N. Y.
Guerin Pierre E. 24 W. 3d st, N. Y.
Guild James B. 44 Murray st, N. Y.
HEISLER ELECTRIC LIGHT CO. (THE), St. Louis, Mo. *See index to advertisers.*
Hogg Andrew H. 11 Murray st, N. Y.
Hinrichs Charles F. A. 31 Park pl, N. Y.
Hitchcock Lamp Co. 59 Murray st, N. Y.
Huff & Brainard, 224 Sixth av, N. Y.

Electroliers & Chandeliers—*continued.*

Knapp Mfg. Co. 24 Frankfort st, N. Y.
Lane Loring, 81 Murray st, N. Y.
Lovell F. H. & Co. 118 John st, N. Y.
Manhattan Brass Co. 475 First av, N. Y.
May, S. E. 11 Murray st, N. Y.
Meriden Malleable Iron Co. 42 Park pl. & 37 Barclay st, N. Y.
Miller Edward & Co. 35 Warren st, N. Y.
Murphy William T. 96 John st, N. Y.
Pabst & Arming, 21 Murray st, N. Y.
Pettet William 60 Warren, st, N. Y.
Raymond C. S. & Co. 266 G'wich st, N. Y.
Reilly Solomon S. 400 and 469 Canal st, N. Y.
Rorke Edward & Co. 40 Barclay st, N. Y.
Russell Henry & Co. 42 Barclay st, N. Y.
Ryan, May & Latus, 38 Bleecker st, N. Y.
Schneider Bennett B. 35 Park pl, N. Y.
Stammer William, 153 G'wich st, N. Y.
Vandewerken Eldridge, 50 Barclay st, N. Y.
Weiss Marcus, 301 W. 42d st, N. Y.
Wright James T. 225 G'wich st, N. Y.

Electrotypers.

F.—Electrotype.
G.—Galvaniseure.

Abbott & Co. 12 Barclay st, N. Y.
Allison & Smith, 168 Vine st, Cincinnati, Ohio,
Amn. Type Foundry, 510 Clay, Phila. Pa,
Blade Ptg. & Paper Co. Toledo, Ohio
Blany C. W. jr. 8 N. Anderson st. Boston, Mass.
Blomgren Bros. & Co., 164 Clark st, Chicago.
Boston Elec. Co. 22 Pearl st, Boston, Mass.
Boston Type Foundry, 104 Milk st, Boston, Mass.
Brinkerhoff John P. 166 G'wich st, N. Y.
Brownell C. Lafayette, Ind.
Calafornia Electrotype Works, 134 Sutter st, Philadelphia. Pa.
Calafornia Type Foundry, 511 Sansom st, Philadelphia, Pa.
Campbell & Co. 174 Elm st, Cincinnati, Ohio.
Carr David & Son, 24 Beekman st, N. Y.
Chandler H. 13 E. Swan st, Buffalo, N. Y.
Chicago Electrotype News Co. 175 Monroe st, Chicago
Cincinnati Type Foundry, 201 Vine st, Cincinnati, Ohio
Claremont Manufacturing Co. Claremont, N. H.
Clark J. S. Troy, N. Y.
Cleveland Electrotype Foundry, 55 Frankfort st, Cleveland, Ohio
Crane Michael, 21 College pl, N. Y.
Craske Charles, 21 Rose st, N. Y.
Denyse Wm. & Sons, 13 Frankfort st, N. Y.
De Wett C. Lent, 30 Park pl, N. Y.
Dill G. H. 222 Gold st, Philadelphia, Pa.
Dill Vincent, 27 New Chambers st, N. Y.
Donhet A. E., 2 S. Walter st, Cleveland, Ohio
Dusenbury B. M., 322 Harmony st, Phila. Pa.
Eichleaum J. & Co. 48 5th av. Pittsburgh, Pa.
Elm St. Pltg. Co. 176 Elm st, Cincinnati, Ohio
Fagan J. & Son, 621 Commerce st, Philadelphia
Felt Joseph P. & Co. 25 Rose st, N. Y.

Digitized by Google

Electrotypers—*continued.*

Ferguson Bros. & Co. 15 N. 7th st, Philadelphia
Francis Valentine & Co. 517 Clay st, Phila. Pa.
Franklin Type Froundry, 168 Vine st, Cincinnati, Ohio.
Harrison & Whitlock 110½ W. Batlo st, Baltimore, Md.
Heymer J. C. & Co. 21 Province st, Boston, Mass.
Hobbs R. H. Hartford, Conn.
Hoe R. & Co. 504 Grand st, N. Y.
Hollingshead James H. 118 William st, N. Y.
Hurst Charles, 113 Nassau st, N. Y.
Hutte Spencer & Co. 83 Jackson st, Chicago
Iowa State Register, Des Moines st. Iowa.
Jamison Bros. 92 Diamond st, Pittsburgh, Pa.
Johnston Wm. G. & Co. 231 Liberty st, Pittsburgh, Pa.
Jungblait, Hendricks & Co. 154 Clark st, Chicago
Ketchun & Wanamaker, Indianapolis
Lennox J. G. Rochester, N. Y.
Little J. J. & Co. Astor pl, N. Y.
Lockmead W. H. Hartford, Conn.
Lohouse A. F. 14 E. Swan st, Buffalo, N. Y.
Lovejoy, Son & Co. 17 Vandewater st, N. Y.
Lymans N. Sons, 36 W. Seneca st, Buffalo, N. Y.
Marder Luse & Co. 139 Munroe st, Chicago
Marshall & Allen, Indianapolis
McCay G. & Co. 203 Vine st, Cincinnati, Ohio
Mengil J. G. jun. St. Paul & Bank sts, N. Y.
Miller & Richmond, 529 Commercial st, Phila. Pa.
Mills & Co. Des Moines st, Iowa
Mumford & Hanson, 704 Sanson st, Philadelphia
Nell G. W. 253 South 12th st, Philadelphia, Pa.
N. E. Type Foundry Co. 243 Washington st, Boston, Mass.
Niven & Muir, Rochester, N. Y.
Northnup W. P. & Co. 13 E. Swan st, Buffalo, N. Y.
Onink C. J. 193 Main st, Buffalo, N. Y.
Pacific Type Foundry, 532 Clay st, Phila. Pa.
Painter & Co. 510 Clay st, Philadelphia, Pa.
Peters C. J. & Son, 73 Federal st, Boston, Mass.
Philps, Dalton & Co. 236 Washington st, Boston, Mass.
Photo. Electrotype Co., 63 Oliver st, Boston, Mass.
Photo. Electrotype Co. (Daniel Cherry & Co.) 13 & 15 Park row, N. Y.
Pugh A. H. 126 Walnut st, Cincinnati, Ohio.
Pundersand & Crisand, New Haven, Conn.
Raisbeck Electrotype Co. 68 Beekham st, N. Y.
Rand U. S. & Co. Toledo, Ohio
Redman & Kenny, 52 John st, N. Y.
Rengler F. A. & Co. 21 & 23 Barclay st & 26 & 28 Park pl, N. Y.
Ringler F. A. cor. Barclay & Church sts, N. Y.
Rogers L. W. 15 Cornhill, Boston, Mass.
Rounds S. P. 175 Munroe st, Chicago.
Rowell R. Louisville, Ky.
Ryan J. & Co., South & German sts, Baltimore, Md.
San Francisco Type Foundry, 512 Clay st, Phila. Pa.
Schulze H. M. 98 Paydras st, New Orleans, La.
Sheldon E. B. & Co. New Haven, Conn.

Electrotypers—*continued.*

Shoppell R. W. 24 Beekman st, N. Y.
Shuideuend & Lie, 200 Clark st, Chicago
Slatterly R. F. 61 Camp st, New Orleans, La.
Smith & McDougal, 82 Beekham st, N. Y.
Stodder Samuel, 90 Ann st, N. Y.
Stone J. Cambridge Port, Mass.
Taylor Joel W. 15 Vandewater st, N. Y.
Union Electrotype Foundry, 76 Frankfort st, Cleveland, Ohio
Van Vleck C. Springfield, Mass.
Warren J. D. 253 Washington st, Baffalo, N. Y.
Weed, Parsons & Co. 41 Columbia st, Albany, N. Y,
Westcott & Thomson, 710 Filbert st, Phila.
Western Electrotype Foundry, 207 Chestnut st, St. Louis, Mo.
Western Newspaper Union, Des Moines st, Iowa
Whitcomb H. C. & Co. 22 Milk st, Boston, Mass.
Winterbum J. & Co. 417 Clay st, Phila. Pa.
Wood R. Troy, N. Y.
Zeese A. & Co. 157 Dearborn st, Chicago

Emery and Crocus Manufacturers.

F.—Emeri et Safran (Fab. d').
G.—Schmirgel und Safran—Fabr.

Baeder, Adamson & Co., 67 Beekman st, N. Y.
ColtAnson 256 Canal st, N. Y.
Mallette Alonzo E. 106 Liberty st, N. Y.
Montgomery & Co., 105 Fulton st, N. Y.
N. Y. Belting & Packing Co. 29 Park row, N. Y.
New York Emery Co., 191 Fulton st, N. Y.
Rogers J. F. & Co. 107 Liberty st, N. Y.
Trask Asa G. 33 Murray st, N. Y.
Union Stone Co. 106 Liberty st, N. Y. Manager A. E. Mallett.
Van Amringe Theodore, 306 Pearl st, N. Y.

Engine Makers—Caloric.

F.—Machines caloriques (Fab. de).
G.—Luftdruckmaschinen.

Sherrill Roper Air Engine Co. 93 Washn. st, N. Y.

Engine Makers—High-Speed.

F.—Moteurs à Grand Vitesse.
G.—Dampfmaschinen zur Erzeugung der Electricität.

Westinghouse Machine Co. (The) 92 & 94 Liberty st, N. Y.

Engine Makers—Steam.

F.—Machines à Vapeur (Fab. de).
G.—Dampfmaschinen.

Allen H. A. 115 B'way, N. Y.
Aller A, 109 Liberty st, N. Y.
Ames Engines & Boilers, 18 S. Canal, st, Chicago
Atlas Iron Works, 135 Beall st, San Francisco
Aultman C. & Co. 126 Main st, Cincinnati, Ohio
Baxter Steam Engine Co. 118 Liberty st, N. Y.
Belcher & Bagnall, 40 Cortlandt st, N. Y.

Digitized by Google

Engine Makers—Steam—*continued.*

Boulter James 79 John st, N. Y.
Brayton Pet Engine Co. 50 Federal st. Boston, Mass.
Burton Iron Works, Corner Front & Pearl st, Brooklyn, N. Y.
Central Iron Works, 2014 Jackson st, St. Louis, Mo.
Cincinnati Sta. Engine & Hy. Works, 3rd corner Lock st, Cincinnati, Ohio
Cobanks & Theall, 65 Bethune st, N. Y.
Common Sense Engine Co. Springfield st, Ohio
Cooke & Co. 6 Cortlandt st, N.Y.
Crane Bros. Mfg. Co. 10 N. Jefferson st, Chicago
Danforth Locomotive & Machine Co. 175 B'way, N. Y.
Davenport James B, 332 Water st, N. Y.
Erie City Iron Works, 132 F. 3rd st, Phila, Pa.
Erie City Iron Works, 45 Cortlandt st, N. Y.
Fletcher W. & A. 266 West street, N. Y.
Globe Foundry and Machine Works, 133 W. 2nd avenue, Cincinnati. Ohio
G. S. & M. Iron Works, 235 1st av. S. Francisco
Hamilton Theodore B. 135 Pearl st, N. Y.
Hampson Edward P. & Co. 36 Cortlandt st, N. Y.
Handren & Robins, 126 Washington st, N. Y.
Hartford Engineering Co. 72 Astor h. st, N. Y.
Leonard & McCoy, 118 Liberty st, N. Y.
Lewis Foundry & Machine Co. 10 corner Neville st, Pittsburgh, Pa.
Lockwood Mfg. Co. 79 Summer st, Boston, Mass.
Locomotive Engine Safety Truck Co. 46 Cortlandt st, N. Y.
Lone & Bodley Co. corner John & Water st, Cincinnati, Ohio.
Love John J. 213 Centre st, N. Y.
Lyons Honore B. 45 Cortlandt st, N. Y.
Merriam Arthur L. 38 Cortlandt st, N. Y.
Oakley, Dowance & Jones, 45 Franklin st, Chicago
Pendergust, Smith & Co. 217 Fremont st, San Francisco
Provident Steam Engine Co. 24 N. 4th st, Phila. Ohio
Reynolds George H. & Co. 10 Cortlandt st, N. Y.
Riodon J. & L. Works, corner Beall & Howard st, San Francisco
Roberts Edward E. 107 Liberty st, N. Y.
Roach John & Son, 814 E. 9th st, N. Y.
Schwartz Christian, 108 Liberty st, N. Y.
Snyder Ward B. 106 Liberty st, N. Y.
Todd J. C. & Simonton, 13 Barclay st. N. Y.
Waldron Engine & Pump Co. 21 Nassau st, N. Y.
Welch & Lawson, 203 Centre st, N. Y.

Engineers—Electric Light.

F.—Ingénieurs—Eclairage Electrique.
G.—Ingenieure—Electrische Beleuchtung.

Bell Graham, 95 Milk st, Boston, Mass.
Edison T. A. 65 5th av, N. Y.
Gray Elisha, 62 New Church st, N. Y.
Greer Henry, 122 E. 26th st, N. Y.
Jones F. W. 9 Bond st, N. Y.

Engineers—Electric Light—*continued.*

Knight J. K. & Co. 1571 B'way, N. Y.
Lockwood Thomas D. 95 Milk st, Boston, Mass.
Maxim Hiram, 120 B'way, N. Y.
Smith Gerritt, 195 B'way, N. Y.

Engineers—Electrical.

F.—Ingénieurs—Electriciens
G.—Ingenieure der Electricität.

Gray Elisha, 62 New Church st, N. Y.
Greer Henry, 122 E. 26th st, N. Y.
HASKINS CHAS. D. 7 & 9 Bond st, N. Y.
Jones F. W. 9 Bond st, N. Y.
Lancaster James H. 97 & 95 Liberty st, N. Y. Consulting Engineer
Lockwood Thomas D. 95 Milk st, Boston, Mass.
Maxim Hiram, 120 B'way, N. Y.
McHugh H. J. 62 Artillery st, Quebec, P. Q.
Smith Gerritt, 185 B'way, N. Y.

Engineers—Mechanical.

F.—Ingénieurs—Mécaniciens.
G.—Ingenieure—Maschinenbau.

Adams & Carter, 109 California st, San Francisco, Cal.
Aller A. 109 Liberty st, N. Y.
Almquist August W. 13 Park row, N. Y.
Angell Water Wheel Co. Calendar, Prov. R. I.
Arnold A. K. 21 Nassau st, Nowark, N. J.
Babcock & Wilcox, 30 Cortlandt st, N. Y.
Barker & Beeston, opp. 5th st. pass. R. R. Depôt. 2509 Knorr st, Philadelphia, Pa.
Beggs James & Co. 9 Dey st, N. Y.
Benjamin, Fischer & Mulberry, 224 S. Jefferson st, Chicago, Ills.
Benjamin, Park & George H. 235 B'way, N. Y.
Birch W. H. 119 Beale st, San Francisco, Cal.
Blanchard W. & R. H. Morris, 195 B'way, N. Y.
Bordwell & Rogers, San Francisco, Cal.
BRIDGES LYMAN, San Francisco, Cal.
Buel & Brevoort, 206 B'way, N. Y.
Buswell W. F. 223 Mission st, San Francisco, Cal.
Chambers Bros. & Co. 52nd st. & Lancaster av, Philadelphia, Pa.
Chapman H. W. 11 Mechanic st, Newark, N. J.
Clarké Charles L. 65 Fifth av, N. Y.
Copeland Charles W. 24 Park pl, N. Y.
Creamer Jas. Philadelphia Pa. & Cleveland, Ohio.
Cumming Alexander M. 55 B'way, N. Y.
Cumming Geo. 219 E. 18th st, N. Y.
Darkin Frank, 118 Liberty st, N. Y.
Darlington John H. 31 Pine st, N. Y.
Davison Henry J. 231 B'way, N. Y.
De Beauvais Jules, 2 Howard st, N. Y.
Destach A. 135 Main st, San Francisco, Cal.
Dudrich Brs. 506 St. John st, Philadelphia, Pa.
Edwards Joseph & Co. 414 Water st, N. Y.
Eliot Boyd 40 Astor h, N. Y.
Faberdufaur Adolph, 93 John st, N. Y.
Fish John, 39 Nassau st, N. Y.
Gardiner Herman, 7 Murray st, N. Y.

Digitized by Google

Engineers—Mechanical—*continued.*

Gay, Clapp & Co. 370 Atlantic av, Boston, Mass.
Gray Albert, 148 William st, N. Y.
Griffith & Marquelle, 6 W. Falls av, Baltimore
Haley Josiah S. 76 Centre st, N. Y.
Hall Chandler, 262 B'way, N. Y.
Haswell Charles H. 29 B'way, N. Y.
Hewes & Phillips, cor. Orange & Ogden sts, Newark, N. J.
Hicks James M. 19 Park pl, N. Y.
Hill C. C. 80 Market st, San Francisco, Cal.
Hoster Theodore G. 261 B'way, N. Y.
Howard G. H. & W. I. 2nd cor. Holliday st, Baltimore
Howe & Chandler, 7 Exchange pl, Boston, Mass.
Hubbe Martin, 198 B'way, N. Y.
Krajewski Thomas F. 35 B'way, N. Y.
Krom Stephen R. 93 Washn. st, N. Y.
Lancaster J. H. 295 B'way & 95 Liberty st, N. Y.
Leeds Lewis W. 33 B'way, N. Y.
Le Mon James, 103 E. 9th st, N. Y.
Lockwood Mfg. Co. 79 Summer st, E. Boston.
LOCKWOOD THOMAS D. 95 Milk st, Boston, Mass.
Maguire Patrick M. J. 245 E. 111th st, N. Y.
Mallory George B. 55 B'way, N. Y.
Malter, Linde & Co. 189 B'way, N. Y.
McGichan I. S. & Co. 169 B'way, N. Y.
McLanthlin G. S. & Co. 120 Foulton gr, Boston, Mass.
Meyer George F. 35 Broad st, N. Y.
Morse Cyrus B. 120 B'way, N. Y.
Neapie & Levy, Beach & Palmer sts, Philadelphia Pa.
Olsen T. & Co. 500 n. 12th st, Philadelphia, Pa.
Page G. & Co. 5 W. Schroeder st, Baltimore
Park Benjamin & Bro. 234 B'way, N. Y.
Poole & Hunt, 7 German st, Baltimore
Raettig Charles, 40 John st, N. Y.
Ramsay H. A. & Co. Hughes cor, William st, Baltimore
Schweizer August, 160 Fulton st, N. Y.
Schulte Wm. F. A. 103 William st, N. Y.
Selden William C. 93 West st, N. Y.
Sharp Thomas R. 115 B'way, N. Y.
Shedd & Gawyer, 65 Westminster st, Providence, R. I.
Steele David, 5 Bowling gr, N. Y
Stevenson James E. 110 Liberty st, N. Y.
Sullivan & Rankins, 36 Wooster st, N. Y.
Sweet & Young, 16 Exchange pl, N. Y.
Thomas Charles M. 314 E. 32d st, N. Y.
Tivy Lawrence 24 John st, N. Y.
Tudor F. & Co. 202 E. 12th st, N. Y.
Walworth Mfg. Co. 69 Killey st, Boston, Mass.
Watts, Campbell & Co. Ogden cor. Passaic av. Newark, N. J.
Weightman & Wolff, 85 Astor h, N. Y.
White William H. 442 Chambers st, N. Y.
Whitton James, 61 William st, N. Y.
Wood & Richmond, 176 B'way, N. Y.

Engineers—Telegraph.

F.—Ingénieurs-Télégraphe.
G.—Ingenieure-Telegraphenbau.

Cummings & Rose, 113 n. 8th st, St. Louis
Morrison J. F. 7 South st, Baltimore

Engravers—Wood.

See Wood Engravers.

Feld Spar Dealers.

F.—
G.—Feldspath-Händler.

Backus John, 446 & 454 Cherry st, N. Y.

Felt Makers.

F.—Feutre (Fab. de).
G.—Fils-Fabrikanten.

Andrews John & Co. 23 Dey st, N. Y.
April Israel, 17 Clinton st, N. Y.
Asbestos Felting Works, 108 Liberty st, N. Y.
Asbestos Patent Fibre Co. 369 W 11th st, N. Y.
Boeder Adamson & Co. 67 Beekman st, N. Y.
Buffum D. & H. & Co. 71 Greene st, N. Y.
Carroll & Co. 113 Spring st, N. Y.
Chalmers, Spence & Co. 23 John st & Ft. E. 9th st, N. Y.
Crane & Chapuis, 13 University pl, N. Y.
Cuthbert Thomas N. 20 Cortlandt & 321 E. 22nd sts, N. Y.
Dolge Alfred, 122 E. 13th st, N. Y.
Gilmour Robert M. 82 John st, N. Y.
Guental Louis C. 21 E. 15th st, N. Y.
Higgins & Hughes, 80 West st, N. Y.
Johns H. W. Mfg. Co. 87 Maiden la, N. Y.
Leonard Orville W. 36 John st, N. Y.
Locke J. A. & Son, 40 Cortlandt st, N. Y.
McNab & Beldon, 96 John st, N. Y.
Martin E. H. & Co. 163 Pearl st, N. Y.
New York Felt Mills, 235 West st, N. Y. White & Crowell, Proprs.
Ostermoor H. D. & Son, 36 B'way, N. Y.
Pierce C. W. J. 108 Worth st, N. Y.
Radcliffe Squires, 206 West st, N. Y.
Robinson D. W. & Co. 84 Franklin st, N. Y.
Salamander Felting Co. 23 Dey st, N. Y.
Stroock S. & Co. 21 Walker st, N. Y.
Taylor W. S. & Bloodgood jr. 8 Thomas st, N. Y.
Thomas H. L. 106 Worth st, N. Y.
Tinguc House & Co. 56 Reade st, N. Y.
Van Orden Edward & Co. 72 Maiden la & 7 Liberty st, N. Y.

File Makers.

(See also Saw Makers.)
F.—Limes (Fab. dx).
G.—Filenhauer.

Gesswein F. W. 39 John st, importer of all kinds of French, English and German files and tools for Telephone and Electrical Instrument makers and Paterson File Works, Paterson, N. J.

Digitized by Google

File Makers—*continued.*

Kearney & Foot, 101 Chambers st, N. Y.
Litterst Alexander, r 224 E. 81st st, N. Y.
Lukanitsch Michael, 351 Broome st, N. Y.
Montgomery & Co. 105 Fulton st, N. Y.
Moore Henry, 30 Gold st, agt. for J. & Riley Carr.
Reiley Edward, r 59 Ann st, N. Y.
Rieder G. & J. Haug, 182 Second st, N. Y.
Spruce Charles & Co. 76 Reade st, N. Y.

Flexible Gas, Speaking, Telephone, &c., Tube Makers.

F.—Tuyaux à Gaz flexibles, à Téléphones, &c. (Fab. de).
G.—Fabrikanten für Gaz-, Sprech-, und Telephon Röhren.

Fuller, Seth W. 22 Milk st, Boston.

Galvanizers.

F.—Galvaniseurs.
G.—Galvaniseure für Eisen.

Donnelly Samuel, 343 W. 36th st, N. Y.
Hoopes & Merry, 539 W. 13th st, N. Y.
Jersey City Galvanizing Co. 98 John st, N. Y.
Lefferts, Marshall & Co. 90 Beekman & 503 Cherry sts, N. Y.
Mason Mfg. Co., 717 First ave. N. Y.
Nelson Admiral, 295 Pearl st, N. Y.
Ottiwell John D. 199 and 1552 Third ave. N. Y.
Sayles Henry L. 314 E. 75th st, N. Y.
Seton, J. 421 Myatte av, Beooklyn.
Tiebout W. & J. 33 Chambers st, N. Y.

Gas Engines.

F.—Machines (Fab. de)—Gaz Moteurs.
G.—Gas-Motoren.

Manning A. C. 47 Dey st, N. Y.

Gelatinized Fibre Manufacturers.

F.—Fibre Gélatinisee (Fab. de).
G.—Gallertefaser-Fabrikanten.

COURTENAY & TRULL, 17 Dey st, N. Y.

German Silver Manufacturers.

F.—Maillechort (Fab. de).
G.—Neusilber—Fabr.

Coe Brass Manufacturing Co. Torrington, Conn.

German Silver Wire Manufacturers.

F.—Fil de Maillechort (Fab. de).
G.—Neusilber-Draht-Fabr.

Benedict & Burnham Mfg. Co. 13 Murray st, N.Y.

Glass Benders.

F.—Verre (Cintreurs de).
G.—Glas-Spanner.

BOSTON & SANDWICH GLASS CO. 17 Murray st, N.Y. *See index to advertisers.*

Glass Blowers.

F.—Verre (Souffleurs de)
G.—Glasbläser.

BOSTON & SANDWICH GLASS CO. 17 Murray st, N. Y. *See index to advertisers.*
Demuth Brothers, 80 Walker st, N. Y.
Rieth John, 138 Allen st, N. Y.

Glass Case Makers.

F.—Vitrines (Fab de).
G.—Glaskaster—Fabr.

BOSTON & SANDWICH GLASS CO. 17 Murray st, N.Y. *See index to advertisers.*

Glass Cutters.

F.—
G.—Glasschneider.

Archer Thomas, 211 E. 22nd st. N. Y.
Batten & Downing, 209 Hudson st. N. Y.
Devoe Joshua D. 180 Centre st, N. Y.
Donnelly J. R. & Co. White n Centre st, N. Y.
Dunham Thomas C. 68 Murray st, N. Y.
Fagot J. & Son, 141 Elm st, N. Y.
Flynn & Welsh, 202 E. 29th st, N. Y.
Francois Edward, 50 Beekman st, N. Y.
Gallagher & Gilroy, 80 Cliff & 323 Pearl sts, N. Y.
Hallahan & Cavanagh, 144 Greene st, N. Y.
Hartel Jacob, 137 Elm st, N. Y.
Heydorf Samuel H. 174 Worth st, N. Y.
Hoare John, 34 Church st, N. Y.
Hollander Oscar, 210 Canal st, N. Y.
Hornberger Jacob, 124 Baxter st, N. Y.
Jones Thomas, Franklin c Centre st, N. Y.
Laurent John V. White n Elm st, N. Y.
Liddy & Potts Brothers, 60 Duane st, N. Y.
Lum William H. 46 Murray st, N. Y.
Marrett Michael, 210 Canal st, N. Y.
McGraw William, 115 W. 33rd st, N. Y.
Meyer Peter P. 117 Prince st, N. Y.
O'Neill William, 68 E. Houston st, N. Y.
Russell J. W. & Co. 297 Pearl st, N. Y.
Schweitzer & Son, 145 Mulberry st, N. Y.
Shearer John, r 120 William st, N. Y.
Sheridan Joseph P. 72 Murray st, N. Y.
Simonin Louisa, 63 Elizabeth st, N. Y.
Taylor Arthur S. 173 Grand st, N. Y.
Vogeley Alexander, Franklin c Elm st, N. Y.
Walker Glass Importing, Silvering & Mfg. Co. 702 B'way, N. Y.

Glass Founders.

F.—Verriers.
G.—Glas Schmelzer.

Cohansey Glass Mfg. Co. 32 N. 4th st, Phil. Pa.

Glass Manufacturers.

F.—Verriers.
G.—Glas Fabriken.

Allen Henry, 138 William st, N. Y.
Atlantic Glass Co. 95 Water st, Pittsburgh, Pa.

Digitized by Google

Glass Manufacturers—*continued.*

Aubrey & Reiser, 191 Worth st, N. Y.
Banker George W. 41 Platt st, N. Y.
Bay State Glass Co. E. Cambridge, Boston, Mass.
BOSTON & SANDWICH GLASS CO. 17 Murray st, N.Y. & Devonshire st, Boston. *See index to advertisers.*
Breite Conrad, 22 N. Moore st, N. Y.
Brinkerhoff Charles E. L. 17 Murray st, N. Y.
Brookfield William, 34 Cliff st, N. Y.
Brookfield Wm. Grand cor. Morgan st, Brooklyn
Bushwich Glass Wks. cor. Grand & Morgan avs, Brooklyn
Central Glass Co. Wheeling, W. Va.
Chandler, Quarles & Co. 34 Hanover, Balt. Md.
Consolidated Fruit Jar Co. 49 Warren st, N. Y.
Crystal Glass Co. 1601 Pittsburgh, Pa.
Dannenhoffer Bros. Throop cor. Gang st, Brooklyn, N. Y.
Dean William B. 43 Murray st, bar and hotel glassware, N. Y.
Deknatel J. A. & Co. 4 Howard st, N. Y.
Dela Chappelle E. & Co. Van Brunt cor. Delaware st, Brooklyn, N. Y.
Demuth Brothers, 89 Walker st, N. Y.
Dobbs John H. 60 Barclay, agt. for A. J. Beatty & Sons & Riverside Glass Works, N. Y.
Dorflinger William F. 36 Murray, st, N. Y. Agent for Honesdale Glass Co.
East River Flint Glass Wks. N. 11 cor. 2nd st, Brooklyn
Ellenville Glass Factory, 85 John st, N. Y. Charles A. Edwards
Empire State Flint Glass Wks. 104 Kent ave, Brooklyn, N. Y.
Eureka Glass Annealing Wks. 95 Commercial st, Brooklyn
Excelsior Flint Glass Co. cor. Miltenberger and Ann st, Pittsburgh, Pa.
Greenpoint Flint Glass Wks. 915 Commercial st, Brooklyn, N. Y.
Goble Henry M. 73 Murray st, N. Y.
Gunthel B. 66 Reade st, N. Y.
Hagerty, Bros. & Co. Smith cor. Hamilton ave, Brooklyn
Hagerty Brothers & Co. 10 Platt st, N. Y.
Hastings & Hahn, 55 Murray st, N. Y.
Haydock Robert R. & Co. 75 Murray st, N. Y.
Heidt L. 27 Whipple st, Brooklyn
Hibler & Ransch, 212 Concord st, Brooklyn
Hummel William, 75 First av, N. Y.
Huwer J. N. cor. Manjor & Morgan ave, Bklyn.
Kendall Joseph R. 38 Park pl, N. Y.
Kirchner F. 53 Deimoures pl, Brooklyn
La Bastie Wks. cor. Delevan & Van Brunt, Brooklyn, N. Y.
Lebel E. 54 Barclay st, N. Y.
Lonsdat A. Many, cor. Wallabout st, Brooklyn
Lucas A. H. 79 Adams st, Brooklyn, N. Y.
Mayer C. 182 N. 8th st, Brooklyn, N. Y.
Mobile Glass Co. 501 N. 3rd st, St. Louis, Mo.
Nail City Glass Co. Whieling, W. Va.
N. E. Glass Wks. (W. L. Libby & Son) 67 Federal Works, E. Cambridge, Boston, Mass.

Glass Manufacturers—*continued.*

New England Glass Works, 38 Park pl & 33 Barclay st, N. Y.
N. E. Olass Wks. 4 P. O. sq, Boston, Mass.
Nichols Jacob J. 26 Barclay st, N. Y.
No. Wh. Glass Co. Whieling, W. Va.
Phœnix Glass Co. 87 Water st, Pittsburgh, Pa.
Ranney Henry C. 58 Barclay st, N. Y.
Riemann Herman, 88 Maiden lane, N. Y.
Rieth John, 138 Allen st, N. Y.
Rorke Edward & Co. 40 Barclay st. N. Y.
Russell Henry & Co. 42 Barclay st, N. Y.
Ryan W. F. 291 Front st, Brooklyn, N. Y.
San Francisco and Pac. Glass Wks. cor. King and 4th st, San Francisco, Cal.
Scott Walter H. 39 Barclay st, N. Y.
Snyder William J. 54 Barclay st, N. Y.
Steinbuch F. & Son, 18 Platt st, N. Y.
Storm F. N. 11th st, car. 2nd E. D. Brooklyn
Union Glass Co. 129 Milk st, Boston, Mass.
Wapler Brothers, 22 Warren st, N. Y.
Weddle & Magee, 33 Murray st, N. Y.
Wililamsburgh Flint Glass Wks. Throop ave. and Gerry st, Brooklyn, N. Y.

Glass Shade Makers and Dealers.

F.—Abats-jours en verre (Fab. de).
G.—Glasglocken-Fabrikanten.

BOSTON & SANDWICH GLASS CO. 17 Murray st, N. Y. *See index to advertisers.*
Bowie S. R. & Co. 11 Murray st, N. Y.
Cutter Frank L. 7 Murray st, N. Y.
Day William, 47 Vesey st, N. Y.
Katz Isaac, 535 E. 11th st, N. Y.
Lynch Mary E. 376 Bowery st, N. Y.
Pardessus Semon J. 9 Park pl, N. Y.
Quarre V. Co. 11 Murray st, N. Y.
Wapler Brothers, 22 Warren st, N. Y.
Weber Phillip, 50 Barclay & 45 Ann st, N. Y.
Wiggers Eva, 180 E. Houston st, N. Y.

Graphite Manufacturers.

F.—Graphite (Fab. de).
G.—Graphit.—Fabr.

Dixon Crucible Co. 229 R. R. ave. Jersey City, N. Y. and 68 Reade st, N. Y.

Gutta Percha Manufacturers.

F.—Caoutchouc (Fab. de).
G.—Guttapercha-Fabrikanten

Bishop (The), Gutta Percha Wks. 420, 422, 424 and 426 E. 25th st, N. Y., W. W. Marks supt.
Hodgkiss Geo. 66 Boemm st, Brooklyn, N. Y.

India Rubber Brokers and Dealers.

F.—Caoutchoue (Fab. et Marchands de.)
G.—Indiarubber-Händler.

Abecasis J. S. & Son, 41 Beaver st, N. Y.
Alden G. A. & Co. 167 Congress st, Boston, Mass.
Kenton Chas. 229 B'way, N. Y.
McRider James, 138 Water st, N. Y.

Digitized by Google

India Rubber Goods Makers.

F.—Usines de caoutchouc (Fab. d').
G.—

Bachrach Bros. 73 Teneyck st, Brooklyn, N. Y.
Corwin, Jm. 306 Fulton st, Brooklyn, N. Y.
Deckinson C. B. 46 Court & 660 Atlantic avs, Brooklyn, N. Y.
Doherty E. 444 1st st, E. D. Brooklyn.
Heilbrun & Krymer, 14 Dunham pl, Brooklyn.
Holton F. A. 1 Adams st, Brooklyn.
Kahl G. & Son, 37 B'way, Brooklyn.
Thorne T. G. 211 Fulton st, Brooklyn.

Indigo—Importers of.

F.—Indigo.
G.—Indigo.

Durkee E. R. & Co. 135 Water st, N. Y.
Gantz, Jones & Co. 176 Duane st, N. Y.
Halsey & Allen, 182 Water st, N. Y.
Lewison Isidor, 570 Grand st, N. Y.
Mundheim Isaac, 206 Stanton st, N. Y.

Injectors and Ejectors.

F.—
G.—

Aller A. 109 Liberty st, N. Y.
Hancock Inspirator Co. 111 Liberty st, N. Y.
Nathan & Dreyfus, 92 Liberty st, N. Y.
Sellers William & Co. 79 Liberty st, N. Y.

Ink—Printing—for Telegraphs.

F.—
G.—Druckerschwärze-Fabrikanten.

Balmain George, 76 William st, N. Y.
Collins Sheldon, 26 Frankfort st, N. Y.
Francis & Loutrel, 45 Maiden la, N. Y.
Gein Louis H. 46 Vesey st, N. Y.
Hoyt Albert C. 25 Rose st, N. Y.
Johnson Charles Eneu & Co. 45 Rose st, N. Y.
Levey Fred. H. & Co. 122 Fulton st, N. Y.
Lightbody John G. & Co. 24 Beekman and 345 E. 61st sts, N. Y.
Lynch M. C. & Co. 169 William st, N. Y.
Mather's George, Sons, 60 John st, N. Y.
Morrill George H. & Co. 25 Rose st, N. Y.
Nuebell & Devos, 14 First st, N. Y.
Robinson Brothers, 22 Vesey st, N. Y.
Underwood John & Co. 30 Vesey st, N. Y.
Wade H. D. & Co. 117 Fulton and 50 Ann sts, N. Y.
Wilson W. D. & Co. 7 Spruce st, N. Y.
Wright J. K. & Co, 22 Spruce st, N. Y.

Ink—Writing.

F.—Encre (Fab. d').
G.—Dinte-Fabrikanten.

Baldwin Bradley H. 307 B'way, N. Y.
Carr, Nicholson & Co. 19 Dey st, N. Y.

Ink—Writing—*continued.*

Carter, Dinsmore & Co. 36 Dey st, N. Y.
"Climax" Manufacturing Co.'s Blue-Black Writing & Copying Fluids, Geo. Cumming agent, 219 E. 18th st, N. Y.
Davids John B. & Co. 184 William st, N. Y.
Davids Thaddeus & Co. 127 William st, N. Y.
Durkee E. R. & Co. 135 Water st, N. Y.
Fountain Ink Co. 75 John st, N. Y.
Francis & Loutrel, 45 Maiden la, N. Y.
Kent Edward N. 116 John st, N. Y.
Leak Thomas D. 378 Bleecker st, N. Y.
Lewis Chemical Co. 19 Dey st, N. Y.
Marsh Richard, 133 William st, N. Y.
Meyer Herman U. Av. A n E. 54th st, N. Y.
N. Y. Ink Co. 19 Park pl, N. Y.
Robartes & Son, 165 B'way, N. Y.
Stafford Samuel S. 218 Pearl st, N. Y.
Stratton Ezra W. 224 Lex. av, N. Y.
Tobey M. B. 9 W. 14th st, N. Y.
Underwood John & Co. 30 Vesey st, N. Y.

Insulator Manufacturers.

F.—Isoloirs (Fab. de).
G.—Isolatoren-Fabrikanten.

Brooks David, 22 South 21st st, Philadelphia.
COURTENAY & TRULL, 17, Dey st, N. Y.
See index to advertisers.
Day A. G. 120 B'way, N. Y.

Inventors—Electrical.

F.—Inventeurs-Electriques.
G.—Bureau zur Ausnützung von Erfindungen.

EMBIGLER RUDOLF, N. Y.
TOBEY & KINSMAN, 145, B'way & 86, Liberty st, N. Y.

Iridium Manufacturers.

F.—Iridium (Fab. d').
G.—Iridium-Fabrikanten.

American Iridium Company, S. E. corn. of Pearl and Plum sts, Cincinnati, O.

Iron Pipe Manufacturers.

F.—Tuyaux de fer (Fab. de).
G.—Röhren (Eisen).

Allison W. C. 78 John st, N. Y.
Am. Tube & Iron Co. 98 John st, N. Y.
Am. Tube & Iron Co. Middletown, Pa.
Am. Tube & Iron Co. 28 School st, Boston, Mass.
Annie & Co. 13 Adams st, Brooklyn, N. Y.
Asphalted Wrought Iron Pipe Co. 550 E. 117th st, N. Y.
Barr Edward, 78 John st, N. Y.
Benton, Faulkner & Bird, 35 Dey st, N. Y.
Blakslee E. G. & Co. 80 Centre st, N. Y.
Bonner & Vancourt, 242 Canal and 517 W. 45th st, N. Y.

Digitized by Google

Iron Pipe Manufacturers—*continued.*

Bourbon, Copper & Brass Works, 196 E. Front, Cincinnati, Ohio.
Brown & Owen, 129 Noble st, Philadelphia.
Burgess, Jonasson & Co. Warren, Pa.
Burnet & Leonard, 448 Ogden, Newark, N. J.
Byers A. M. & Co. 93 Water st, Pittsburgh, Pa.
Campbell Felix, 79 John st, N. Y.
Campbell William W. 85 Liberty st, N. Y.
Chelmsford Foundry Co. 131 Portland st, Boston, Mass.
Chester Pipe & Tube Co. Chester, Pa.
Cincinnati & Newport Iron & Pipe Co. Newport, Ky.
Cincinnati Lead Pipe & Sheet Lead Works, 17 E. 9th st, Cincinnati, Ohio.
Columbus Iron Pipe Co. Columbus, Ohio.
Corning Jasper, 30 Platt st, N. Y.
Crescent Tube Co. Ld. 165 1st av. Pittsburgh, Pa.
Crescent Tube Co. 15 Public Landing, Cincinnati, Ohio.
Cunningham Iron Works, 83 Water st, Boston, Mass.
Curtis A. G. & Co. Cohoes, N. Y.
Dalton & Meyersall, 19 Union st, Boston, Mass.
Dannenhold B. & Co. 99 W. 5th st, Cincinnati, Ohio.
Downing J. M. Newcastle, Pa.
Druliard & Hayes, 344 Exchange, Buffalo, N. Y.
Eaton, Cole & Burnham Co. 58 John st, N. Y.
Ford & Kendig, 712 Filbert st, Philadelphia.
Getze & Reeves, 9 N. 5th st, Philadelphia.
Gibson T. & Co. 200 Vine st, Cincinnati, Ohio.
Goodhue & Binnie, Springfield, Mass.
Griffith M. 128 Front st, Brooklyn, N. Y.
Hart, Ball & Hart, 297 Main st, Buffalo, N. Y.
Hondlette F. A. & Co. 19 Batterymarch st, Boston, Mass.
Hoover J. & Son, Norristown, Pa.
Hunter & Dickson, 245 Arch st, Philadelphia.
Hunter, Keller & Co. 142 Centre and 117 Walker st, N. Y.
Jamer, Jacobs and Co. 84 John st, N. Y.
Kirkup W. & Son, Pearl & Ludlow sts, Cincinnati, Ohio.
Langford J. T. 40 Mason bldg, Boston, Mass.
Long D. & Co. Lousville, Ky.
Loughry William P. 16 Cliff st, N. Y.
McGowan J. H. & Co. 134 & 141 W. 2nd st, Cincinnati, Ohio.
McHenry & Co. 8 E. 4th st, Cincinnati, Ohio.
McMann T. R. & Brother, 56 Gold st, N. Y.
McNab & Harlin Mfg. Co. 56 John st, N. Y.
McNeal A. H. Burlington, N. J.
Mancely J. 119 N. 4th st, Philadelphia.
Marcellus C. N. & Co. 69 Varick st, N. Y.
Mellort Foundry & Machine Co. Reading, Pa.
Morris, Tasker & Co. (Limited) 15 Gold st, N. Y.
Morris Tasker & Co. (Limited) 230 S. 3rd st, Philadelphia.
Morse James O. 76 John st, N. Y.
Mott J. L. Iron Works, 88 Beekman st, 1283 B'way and Third av. c 133rd st, N. Y.
Myers J. & Co. 20 Johnston st, Cincinnati, Ohio.

Iron Pipe Manufacturers—*continued.*

Nason Mfg. Co. 71 Beekman and 71 Fulton sts, N. Y.
National Tube Works Co. 104 John st, N. Y.
National Tube Works Co. 161 Lake st, Chicago.
National Tube Works Co. McKeesport, Pa.
National Tube Works Co. 113 Water st, Pittsburgh, Pa.
Nelson William jr. ft. E. 53rd st, N. Y.
Nottingham T. J. & Co. 212 E. Front st, Cincinnati, Ohio.
Pancoast & Tarr, 28 Platt st, N. Y.
Patent Water & Gas Pipe Co. 41 Dey st, N. Y.
Patten J. jr. & Co. 61 Greenpoint av, Brooklyn, N. Y.
Pennsylvania Tube Co. 4 Duquesne way, Pittsburgh, Pa.
Reading Iron Works, 28 Platt st, N. Y.
Runkle William, 162 B'way, N. Y.
Simmons John, 108 Centre st, N. Y.
Stanley B. F. 202 E. Front st, Cincinnati, Ohio.
Starr, J. W. 200 S. 3rd st, Philadelphia.
Stephens & Kellam, 93 William st, N. Y.
Townsend P. E. & Co. (Limited) Bradford, Pa.
Walworth Mfg. Co. 73 Kilby st, Boston, Mass.
Whetstone & Co. 107 N. 3rd st, Philadelphia.
Woodmann C. & Co. 41 Pene st, Boston, Mass.

Ivory Turners—Electrical Uses.

F.—Tourneurs en ivoire.
G.—Elfenbein Dreher.

Grote F. & Co. 114 E. 14th st, N. Y.

Lamp Black.

F.—Noir de fumée.
G.—

Binney & Smith, 55 Ferry st, N. Y.
Nolen & Boardman, 5 Beekman st, N. Y.
Rogers & Co. 299 Pearl st, N. Y.
Smith A. 66 Cortlandt st, N. Y.

Lamp Post Manufacturers.

F.—Lampadaires (Fab. de).
G.—Lampfosten-Fabrikanten.

N. A. Iron Works, 40 & 42 Walton st, Brooklyn

Lead Pipe Manufacturers.

F.—Suyaux—Plomb.
G.—Röhren-Blei.

Bandeis L. & Son, 46 Fulton st, Brooklyn
Calder John L. 121 E. 13th st, N. Y.
Colwell Lead Co. 63 Centre, 524 Pearl st, & 1416 B'way, N. Y.
Dubois Addison & Son, 512 W. 30th st, N. Y.
Leroy Shot & Lead Mfg. Co. 261 Water st, & 607 Sixth av, N. Y. with McShane
N. Y. Smelting & Refining Co. 509 West st, N. Y.
Schoenberg Metal Mfg. Co. 530 E. 20th st, N. Y.
Tatham & Brothers, 82 Beekman st, N. Y.

Digitized by Google

Leather Belting Manufacturers.

F.—Courroies (Fab. de).
G.—Maschinenriem-Fabrikanten..

Ballard Stephen & Co. 26 1st st, E. D. Brooklyn
Beggs James & Co. 9 Dey st, N. Y.
Chatfield Cyrus H. 29 Ferry st, N. Y.
Dodge & Sinclair, 21 Park pl, N. Y.
Fitzgerald Michael J. 62 Centre st, N. Y.
Greene, Tweed & Co. 118 Chambers and 382 Second av, N. Y.
Heim Leather Belting Co. 324 Pearl st, N. Y.
Hoyt J. B. & Co. 28 Spruce st, N. Y.

Lightning Rod Manufacturers.

F.—Paratonnerres—Fabrikanten.
G.—Blitzableiter-Fabrikanten.

Baker, O. P. 48 St. John's pl, Chicago, Ills.
Buckley T. & Co. 462 N. Taylor gr. Chicago, Ills.
Cannon C. N. & Co. 38 Cortlandt st, N. Y.
Chamber's Natl. Ltg. Pro. Co. 145 Central av, Cincinnati, Ohio.
Copper Tube Ltg. Rod Co. 58 Public sq. Cleveland, Ohio
Curtis G. E. 136 James st, N. Y.
De Morest D. W. 39 Mechanic st, N. Y.
Doughty G. N. Denison, Tex.
Forest City Ltg. Rod Co. 12 Case pl, Cleveland, Ohio
Hamlin C. N. & Co. 319 Superior st, Cleveland, Ohio
Hathanay D. L. (Cleveland Ltg. Rod Co.) Columbus, Ohio
Hawley L. J. 7th st, & La av, Washington, D. C.
Holmes J. F. 81 Cranston st, Providence, R. I.
Lechter A. Lancaster, Pa.
Lilly Chas. H. 19 Hudson st, N. Y.
Middleton & Co. 1828 Ridge av, Philadelphia, Pa.
Moreland J. Denison, Tex.
Penna Ltg. Rod Co. Harrisburg, Pa.
Penna Ltg. Rod Co. 514 N. 8th st, Phila. Pa.
Randolph J. F. Carlisle bldgs, Cincinnati, Ohio
Reybum, Hunter & Co. 494 St. John st, Phila. Pa.
Reybum, Hunter & Co, 61 Jackson st, Chicago, Ills.
Smith, Hewitt & Co. 247 Lake st, Chicago, Ills.
Waters M. 426 Clinton av, N. Y.
West J. D. & Co. 46 Cortlandt st, N. Y.
Westervelt A. B. & W. T. 102 Chambers st, N. Y.
Weston J. H. 29 W. 6th st, Cincinnati, Ohio
Weston J. R. 79 Bank st, Cincinnatti, Ohio.
Williams Edward H. 64, Cottage pl, N. Y.

Machine Manufacturers.

F.—Machines (Constructeurs de).
G.—Maschinen-Constructeure.

HEISTER (The) ELECTRIC LIGHT Co. St. Louis, Mo. *See index to advertisers.*
Sheffield Velocipede Car Co. Three Rivers, Mich.
Westinghouse Machine Co. (The) 92 & 94 Liberty st, N. Y.

Machine Screw Manufacturers.

F.—Vis (Fab. de).
G.—Sedrauben-Fabriken.

Montgomery & Co. 105 Fulton st, N. Y.
Shapleigh T. W. & Co. 30 Hanover st, Boston Mass.

Magnet Manufacturers.

F.—Aimants (Fab. d').
G.—Magnete-Verfertiger.

ANSONIA (The) BRASS & COPPER Co. 19 & 21 Cliff st, N. Y.
Moore Alfred F. 200 & 202 N. Third st, Phila, Pa.
POST & Co. South West Corner, Pearl & Elm sts, Cincinnati
TILLOTSON L. G. & Co. 5 & 7 Dey st; factory 139, 141, & 143, Centre st, N. Y.

Magnetic Clothing.

F.—
G.—

Berwin G. H. 457 Fulton st, Boooklyn, N. Y.
Cotter H. 44 Fourth E. D. Brooklyn, N. Y.
Victoria, 445 Fulton st, Brooklyn, N. Y.
Wilsonia, 465, Fulton & 25 E. 14th sts, Brooklyn

Magnetic Curative Appliance Manufacturers.

F.—Appareils médicaux (Fab. d').
G.—Magnetische Heilapparrate.

Berge J. & H. 95 Fulton & 191 Greenwich st, N. Y.
Hendrick Dr. L. 467 5th av, N. Y. (above 40th st)
Kraft Henry de, M.D. 467 av, N. Y. (above 40th st)
Smith T. J. 81 Third st (2 doors from B'way), Brooklyn, E. D.

Manganese—Grinders of.

F.—Manganèse.
G.—Braunstein.

Hillier's R. Son & Co. 46 Cedar st, N. Y.

Manifold Paper Manufacturers.

F.—
G.—

"Climax" Manufacturing Co.'s celebrated Brand; Geo. Cumming agent, 219 E. 18th st, N. Y.
Francis & Lontril, 45 Maiden lane, N. Y.

Map & Chart Engravers.

F.—
G.—

Atwood J. M. 410 Walnut st, Phila. Pa.
Smith & Stroup, 5 & N. 6th st, Phila. Pa

Digitized by Google

Mathematical Instrument Makers.

F.—Instruments de mathematique (Fab. d').
G.—Mathematische Instrumente-Verfertiger.

Albrecht Henry, 62 Fulton st, N. Y.
Barry John, 62 Fulton st, N. Y.
Bayer Adolph, 63 Fulton st, N. Y.
Beck Albin, 50 Fulton st, N. Y.
Brandis Frederick E. 55 Fulton st, N. Y.
Brandt Frank 2408 First av, N. Y.
Eckel Frederick, 16 Burling st, N. Y.
Eggerts D. Sons, 74 Wall st, N. Y.
Emmerick Frederick J. 138 Fulton st, N. Y.
Gardam W. & Sons, 96 John st, N. Y.
Gendar W. F. & T. V. 87 Fulton st, N. Y.
Green J. & H. J. 757 B'way, N. Y.
Gregg William T. 77 Fulton & 128 Front sts, N. Y.
Hernin Martin, 56 South st, N. Y.
Hoffmann Louis C. 13 B'way, N. Y.
Hunter Hugh W. 1132 B'way, N. Y.
Kahn, Hanover & Co. 32 Maiden la, N. Y.
Keuffel & Esser, 127 Fulton & 42 Ann sts, N. Y.
Kroedel Franz, 52 Nassau st, N. Y.
Large J. T. & Son, 118 Powers st, Brooklyn, N. Y.
Merrill's Robert Sons, 179 Water st, N. Y.
Meyer Cust W. 11 Dey st, N. Y.
Newbeck & Weiss, 316 E. 84th st, N. Y.
Oakes John 140 Maiden la, N. Y.
Oelschlaeger Brothers, 162 William st, N. Y.
Pennelli Peter, 194 William st, N. Y.
Pike's Benjamin Son & Co. 928 B'way, N. Y
Prosch Andrew, 36 Platt st, N. Y.
Schoeller Charles, 259 W. 27th st, N. Y.
Seipel John, 60 Chatham st, N. Y.
Soltmann E. 55 Fulton st, N. Y.
Woolman G. S. 116 Fulton st, N. Y.

Medical Battery Manufacturers.

F.—Piles Médicales (Fab. de).
G.—Galvanisirmaschinen.

Berge J. & H. 191 Greenwich & 95 John sts, N. Y.
BOWEN Wm. J. Norwalk, Ohio. *See index to advertisers.*
Hendrich Dr. S. L. 467 Fifth av, N. Y. (above 40th st.)
Jerome Kidder Mfg. Co. 820 B'way, N. Y.
Kraft Henry de, M.D. 467 Fifth av, N. Y. (above 48th st)
Wolfe L. W. & Co. 120 South 14th st, cor. Douglas st, Omaha, Neb.

Medical Electricians.

F.—Electriciens Médicales.
G.—Electrotherapie.

Fanyon Dr. J. B. 193 6th av, N. Y.
Glass Dr. James, 1210 Filbert st, Philadelphia, Pa. Electropathic physician.

Merchants—Manganese.

F.—Marchands—Manganèse.
G.—Braunstein-Händler.

Backus John, 446 Cherry st, N. Y.
Lamson John S. & Brother, 77 Maiden la, N. Y.
Pyrolusite Manganese Co. 54 Cliff st, N. Y.
Woodward C. H. 54 Cliff st, N. Y.

Merchants—Mica.

F.—Marchands-Mica.
G.—Glimmer-Händler.

American Mica Mining Co. Worcester, Mass.
Baysta'e Mining Co., 142 Kneeland st, Boston,
Munsell, Rola & Co. 218 Water st, N. Y.

Metal Dealers.

F.—Métaux (Marchands de).
G.—Metall-Händler.

Ackerman J. H. & Co. 249 Pearl st, N. Y.
Alburtis Clement, W. 95 Liberty st, N. Y.
Alexander John, 59 Beekman st, N. Y.
Anderson B. C. & Co. 87 Pike st, N. Y.
Barstow E. W. & Son, 83 Maiden la, N. Y.
Bond, Parsons & Co. 104 John st, N. Y.
Bornstein Morris, 15 Ann st, N. Y.
Bruce & Cook, 188 Water st, N. Y.
Camm Theodore, 445 E. 10th st, N. Y.
Carroll Richard, 387 South st, N. Y.
Coddington T. B. & Co. 27 Cliff st, N. Y.
Cort N. L. & Co. 245 Water st, N. Y.
Crocker Brothers, 32 Cliff st, N. Y.
Davol John & Sons, 100 John st, N. Y.
Demilt H. R. & Co. 238 Water st, N. Y.
Dickerson, Vandusen & Co, 29 Cliff st, N. Y.
Freeborn William A. & Co. 254 South and 501 Water st, N. Y.
Green J. & H. J. 757, B'way, N. Y.
Hannon John, 5 Warick st, N. Y.
Harnickell A. 83 Maiden la, N. Y.
Hart Lucius & Co. 10 Burling sl, N. Y.
Hendricks Brothers, 49 Cliff st, N. Y.
Hughes Edward, 223 Lewis st, N. Y.
Kahn Brothers, 246 Water st, N. Y.
Katz Ferdinand, 345 Sixth st, N. Y.
Lissberger Abraham K. 521 E. 19th st, N. Y.
McDermott John, 126 Mulberry st, N. Y.
Mackey George D. 201 William st, N. Y.
Mahtey & Riotte, 104 Washn. st, N. Y.
Maillefert Benjamin, 45 William st, N. Y.
Merchant & Co. Cliff c Beekman, 525 Arch & 520 Cherry st, Phila.
Montgomery & Co. 105 Fulton st, N. Y.
Naylor & Co. 99 John st, N. Y.
N. Y. Smelting & Refining Co. 509 West st, N. Y.
O'Donnell Thomas, 82 Pike st, N. Y.
Patterson H. T. & Co. 138 Centre st, N. Y.
Paulsen William, 10 Burling sl, N. Y.
Phelps, Dodge & Co. 11 Cliff st, N. Y.
Quincy John W. & Co. 98 William st, N. Y.
Raynor Hiram M. 25 Bond, Platinum st, N. Y.
Recht Charles, 183 Bowery st, N. Y.
Revere Copper Co. 242 South st, N. Y.
Richards Daniel W. & Co. 88 Mangin st, N. Y.
Roberts Sidney D. 217 Water st, N. Y.
Scarabelich J. & C. Hulster, 185 Ludlow st, N. Y.
Schmidt O. E. & Co. 22 Burling sl, N. Y.
Schoenberg Metal Mfg. Co. 530 E. 20th st, N. Y.
Serf Nicholas, 15 Thompson st, N. Y.
Stockwell John C. 25 Ann st, N. Y.

Digitized by Google

Metal Dealers—*continued.*

Thomson A. A. & Co. 213 Water st, N. Y.
Thomson D. & Co. 215 Water st, N. Y.
Torry & Eaton, 34½ Pine st, N. Y.
Ward Michael, 467 W. 49th st, N. Y.
Wheeler E. S. & Co. 54 Cliff st, N. Y.
Wildes Thomas jr. 124 Beekman st, N. Y.
Woodward John H. 103 E. Houston st, N. Y.

Metal Punches.

F.—
G.—

Dunley William B. 254 South st, N. Y.
Hamilton & Lilley, 536 W. 23d st, N. Y.
Morgan Lewis, 19 Beekman st, N. Y.

Metal Sashes.

F.—
G.—

Anderton Ralph L. 210 Grand st, N. Y.
Badeau Charles R. & Son, 211 Grand st, N. Y.

Metal Spinners.

F.—
G.—

Bassemir John, 41 Centre st, N. Y.
Bohrmann August W. 46 Centre st, N. Y.
Coit Tracy, 19 Vandewater st, N. Y.
Durst William r 120 William st, N. Y.
Haas & Hilgner, 180 Centre st, N. Y.
Hopfensack Ernst, 34 S. 5th av, N. Y.
Kruger & Kruse, 209 Centre st, N. Y.
Schaffert Leonard, 127 Worth st, N. Y.
Schunemann & Swift, 207 Centre st, N. Y.
Stachlen William jr. 141 Elm st, N. Y.

Metal Workers.

F.—
G.—

Campbell Mining & Reducing Co. 175 N. 10th st, Brooklyn and N. Y.
Hanck C. J. & Son, 36 Stagg st, Brooklyn, N. Y.
Lowrey J. 26 Frost st, Brooklyn, N. Y.
Smith J. 65 Java st, Brooklyn, N. Y.
Somers Bros. Front & Pearl sts, Brooklyn, N. Y.
Stielitz Wm. 37 Lorimer st, Brooklyn, N. Y.

Metallic Packing Merchants.

F.—
G.—

Tennant & Hatterslee, 77 Adams st, Brooklyn, N. Y.

Metalline.

F.—
G.—

Am. Metalline Co. 204 Greene st, N. Y.

Mineral White.

F.—
G.—

Pettit John & Brother, 240 Pearl st, N. Y

Mineral Wool.

F.—
G.—

U. S. Mineral Wool Co. 16 Cortlandt st, N. Y

Mineralogists.

F.—
G.—

Barbour Adin E. 102 William st, N. Y.
Barry William M. 141 Eighth st, N. Y.
Cooke Wesley, 141 Eighth st, N. Y.
McAllister Thomas H. 49 Nassau st, N. Y.

Model Makers.

F.—Modèles (Fab. de).
G.—Modelle—Fabr.

Berry Wm. B. & Co. 79 North st, Boston, Mass.
Bunnell J. H. & Co. 112 Liberty st, N. Y.
Burrows William, 85 Beekman st, N. Y.
Jones C. E. & Bros. 51 W. 4th st, Cin. Ohio.
Jost Edmund, 320 Market st, Newark, N. J.
Longstreet J. H. 9 Barclay st, N. Y.
Partrick & Carter, So. 20th Phila. st, N. Y.
Rogers W. H. Fulton st, N. Y.
Rost & Co. Cor. Elm & Pearl, Cincinnati, Ohio
SCHOOLEY W. D. Richmond st, Indiana
TILLOTSON L. G. & Co. 5 & 7 Dey st, N. Y.
Union Electric Mfg. Co. 9 Bond st, N. Y.
Western Electric Mfg. Co. 63 New Church st, N. Y.

Oil Merchants.

F.—Huiles (Marchands d').
G.—Oel-Händler.

Campbell & Thayer, 89 Maiden lane, N. Y.
Cole Wm. A. & Co. 41 Broad & 389 W. 12th sts, N. Y.
Davis's Oil Co. 37½ Water st, N. Y.
Gibbs A. B. & Co. 172 Pearl st, N. Y.
Howe Lard Oil Co. 159 Front st, N. Y.
Hunt Thomas G. 137 Front st, N. Y.
Jewell, Harrison & Co. 27 Water st, N. Y.
Macy's Josiah & Sons, 189 Front st, N. Y.
Pool John H. & Macy, 27 Water st, N. Y.

Opticians.

(*See also Electrical, Mathematical, Nautical and Philosophical Instrument Makers.*)

F.—Opticiens.
G.—Optiker.

Adelmann John, 130 Fulton st, N. Y.
Alt Charles, White c Elm st, N. Y.
Ashley Charles C. 3, Vesey st, N. Y
Bauer Herman, r 17 John st, N. Y.

Digitized by Google

Opticians—*continued.*

Bausch & Lomb Optical Co. 37 Maiden la, N. Y.
Bechtold Adolph, 92 Chatham st, N. Y.
Bennethum & Co. 21 Ann st, N. Y.
Berger Albert & Co. 47 Maiden la, N. Y.
Birmingham Patrick, 142 Fulton st, N. Y.
Borchert Charles, 297½ B'way, N. Y.
Boulter Arthur, 79 John st, N. Y.
Brooks Augusta J. 58 Gt. Jones st, N. Y.
Byrne John, 314 E. 21st st, N. Y.
Cohen Hiram, 203 E. 55th st, N. Y.
Cordeau Edward, 151 Fulton st, N. Y.
Curley J. & Brother, 134 Nassau st, N. Y.
Davis James T. 127 E. 15th st, N. Y.
Dorn Robert, Third av. n 146th st, N. Y.
Ehrlich Jacob, 3 Astor h. and 513 B'way, N. Y.
Francis H. D. 163 9th st, E. D. Brooklyn, N. Y.
Franks C. 280 Grand st, Brooklyn, N. Y.
Freeman J. 1613 Fulton st, Brooklyn, N. Y.
Goldbacher Ernest, 95 Fulton st, N. Y.
Gregg William T. 77 Sutton st, N. Y.
Hoecker J. B. 312 Fulton st, Brooklyn, N. Y.
Hunter Hugh W. 1132 B'way, N. Y.
Johnson T. 227 Fulton st, Brooklyn, N. Y.
Levyson L. 160 Graham av, Brooklyn, N. Y.
Meyer Cust. W. 11 Dey st, nr. B'way, N. Y.
Meyrowitz Bros. 295 & 297 4th av, (cor. 23rd st. N. Y.
Morrison Richd. 1 Adams st, Brooklyn, N. Y.
Norton W. 124 Fulton st, Brooklyn, N. Y.
Peterson J. M. 39 B'way, Brooklyn, N. Y.
Shachan J. H. 202 Grand st, Brooklyn, N. Y.
Tagliabue C. J. 233 Fulton st, Brooklyn, N. Y.
Woolman G. S. 116 Fulton st, N. Y.

Paraffin Wax Manufacturers.

F.—
G.—

Carry, Daniel & Co. 220 Franklin st, Boston, Mass.
Merrian & Morgan, Paraffin Wax Co. 32 Oliver st, Boston, Mass.

Patent & Design Registration Agents.

F.—Brevets et Marques de fabrique (Agents de).
G.—Agenten zum Registriren der Patente, &c.

Banning & Banning 21 Park row, N. Y., & Honore bldgs., Chicago.
Barritt Franklin, 4 College pl, N. Y.
Bennem William L. 19 Park pl, N. Y.
Brinkerhaff C. M. 219 East 18th st, N. Y.
Brown & Brown, 262 B'way, N. Y.
Chichester Clarence, 34 Park row, N. Y.
Conolly Bros. & McTighe, 91 Grant st, Pittsburgh, Pa. 914 F. st, Washington D. C. and 1001 Chestnut st, Phila. Pa.
Curtis Charles G. 140 Nassau st, N. Y.
Dresher Brothers, Philadelphia
Eliot & Eliot, Astor house, N. Y.
Globe Patent Agency, 34 Park row. N. Y.
Goepel Paul Tyron row, Staats-Zeitung bldg, N.Y.
Hoxsey Thomas H. 34 Pine st, N. Y.

Patent & Design Reg. Agents—*continued.*

Knudson Adolphus A. 39 Nassau st, N. Y.
Lancaster James H. 205 B'way & 95 Liberty st, N. Y.
McIntire Jacob N. 140 Nassau st, N. Y.
Munn & Co. 261 B'way, N.Y.
Park, Benjamin & Bros. 234 B'way. Engineers and Experts in Patents.
Pope, Edgecomb & Butler, 32 Park pl, N. Y.
Quimby Edward E. 64 College pl, N. Y. expert in patent causes
Renwick Edward S. 19 Park pl, N. Y.
Richards E. L. & Co. 733 B'way, N. Y.
Roeder Henry E. 304 B'way, N. Y.
Serrell Lemuel W. 140 Nassau st, N. Y.
Shedlock Alfred, 39 B'way, N. Y.
Smith Earle H. 13 Park row, N. Y.
Stetson Thomas D. 23 Murray st, N.Y.
Thornton John S. 7 Murray st, N. Y.
Wilson Silas H. 460 Washn. st, N. Y.

Patent Solicitors.

F.—Agents de Brevets.
G.—Agenten für Patente.

Adams Jos. H. 33 School st, Boston, Mass.
Adcock, 69 Honore Bldg. Chicago, Ills.
Alexander C. M. 709 G st, Washington, D. C.
Alexander T. A. 607 7th st, Washington, D. C.
Allen D. C. 511 F st, Washington, D. C.
Allen W. 632 F st, Waihington, D. C.
Almquist August W. 13 Park row, N. Y.
Anderson E. W. & Co. 700 7th st, Washn. D.C.
Andran A. 61 State st, Boston, Mass.
Babcock W. H. 513 7th st, Washington, D. C.
Bagger L. & Co. 802 F st. Washington, D. C.
Bakewell & Kerr, 10 Diamond st, Pittsburgh, Pa.
Baldwin, Hopkins & Peyton, 25 Grant place, Washington, D. C.
Bates Wm. 27½ W. 3rd st, Cincinnati, Ohio.
Beadle H. W. & Co. 437 7th st, Washn. D. C.
Bell J. S. 913 Walnut st, Philadelphia, Pa.
Beringer W. C. & Co. 106 4th ave. Pittsburgh, Pa.
Boutwell F. M. 54 Equitable bldg. Boston, Mass.
Bowen Francis C. 23 Park row, N. Y.
Brereton Wm. H. 639 F st, Washington, D. C.
Briesen & Betts, 229 B'way, N. Y.
Brinkenhoff C. M. 219 E. 18th st, N. Y.
Brookes W. Colborne, 19 Park pl, N. Y.
Brown E. 311 Walnut st, Philadelphia, Pa.
Brown J. S. 810 F st, Washington, D. C.
Brown Bros. 28 School st, Boston, Mass.
Brown & Brown (late Brown & Allen) 262 B'way, N. Y.
Buckley G. E. 903 Walnut st, Philadelphia, Pa.
Buckley H. V. 903 Chestnut st, Phila. Pa.
Bunnell J. S. Carbondale, Pa.
Burke, Frazer & Connett, 10 Spruce st, N. Y.
Burridge & Co. Superior st, Cleveland, Ohio
Burris Wm. 529 7th st, Washington, D. C.
Butler Howard R. 32 park pl, N. Y.
Carlisle & Elliot, Stenbenville, O.
Carter C. M. 511 7th st, Washington, D. C.

Digitized by Google

Patent Solicitors—*continued.*

Chamberlain & Co. 735 B'way, N.Y. & 207 Clark st, Chicago, Ills.
Chapin G. L. 152 Dearborn, Chicago, Ills.
Christy G. H. 96 Diamond st, Pittsburgh, Pa.
Church M. 617 7th st, N. W. Washn. D. C.
Clark & Raymond, 29 Pemberton sq, Boston, Mass.
Clement L. H. 5 Tremont st, Boston, Mass.
Connolly Bros. & McTighe, 91 Grant st, Pittsburgh, Pa. 914 F st, Washington, D. C. and 1001 Chestnut st, Philadelphia, Pa.
Cordell W. B. 218 Locust st, St. Louis, Mo.
Coupland L. B. & Co. 70 La Salle st, Chicago, Ills.
Cragin H. W. 617 7th st, Washington, D. C.
Crawford N. 529 7th st, Washington, D. C.
Crosby & Gregory, 34 School st, Boston, Mass.
Cummings E. 1 Arcade bldg, Buffalo, N. Y.
Curtis F. 4 S. O. sq, Boston, Mass.
Davenport N. Troy, N. Y.
Dayton M. E. 95 5th ave. Chicago, Ills.
Deane L. 515 7th st, Washington D. C.
Dodge & Son, 700 9th st, Washington, D. C.
Donn E. W. 930 F. st, Washington, D. C.
Donn Wilton C. 115 Nassau st, N. Y.
Doubleday & Bliss 705 H st, Washington, D. C.
Drummer E. 9 Tremont row, Boston, Mass.
Duell, Laass & Hey, Syracuse, N. Y.
Duffie J. S. 632 F st, Washington, D. C.
Dyer & Wilber 519 F. st, Washington, D. C.
Dyhrenfruth P. C. 204 Dearborn st, Chicago, Ills.
Eddy R. H. 76 State st, Boston, Mass.
Edson Wm. 7th Exchange pl, Boston, Mass.
Edson Bros. 711 G. st, Washington, D. C.
Edwin J. L. 633 F st, Washington, D. C.
Eliot Boyd, 40 & 41 Astor house, N. Y.
Eliot Eugene N. 40 & 41 Astor house, N. Y.
Eliot & Eliot, Astor house, N. Y.
Ellis T. G. Hartford, Conn.
Ells & Doolittle, 703 7th st, Washington, D. C.
Emmerich Frederick J. removed to 138 Fulton st, N. Y.
Ennis H. J. 711 G st, Washington, D. C.
Evans A. H. & Co. 505 7th st, Washn. D. C.
Farjeon Israel, 75 Nassau st, N. Y.
Finckel Wm. H. 637 F st, Washington, D. C.
Fisher W. H. 12 Wiggins bldg. Cinn. Ohio.
Ford John, 418 Pearl st, N. Y.
Foster C. E. 509 7th st, Washington, D. C.
Fowler C. H. 706 3th st, Washington, D. C.
Franks Charles, 310 Grand st, N. Y.
Friedlander R. & L. 264½ Bowery st, N. Y.
Frisby William, 120 B'way, N. Y.
Gall J. & Co. 21 Union sq, N. Y.
Gangener & Walker, 426 Walnut st, Phil. Pa.
Garrard J. D. 44 Johnston bldg. Cinn. Ohio.
Gelson E. H. & Co. 73 Corcoran bldg. Washn, D. C.
Gillmur David, 53 Nassau st, N. Y.
GOEPEL PAUL, Staats-Zeitung bldg. Tryon row, N. Y. Solicitor of American & Foreign Patents. Publisher of *Der Techniker*.
Goldbacher Ernest, 98 Fulton st, N. Y.
Goldworthy J. E. 3 Westminster st, Providence, R. I.
Good C. J. St. Cloud bldg. Washington, D. C.

Patent Solicitors—*continued.*

Gottlieb Adolph, 172 Fulton st, N. Y.
Gregg William T. 77 Fulton st, N. Y.
Gridley J. H. 7 F st, Washington, D. C.
Gridley & Co. 89 Madison st, Chicago, Ills.
Grieshaber Christian, 105 Clinton st, N. Y.
Grunow Julius, 70 W. 39th st, N. Y.
Guth Henry, 245 Bowery st, N. Y.
Hall H. C. 261 B'way, N. Y.
Halsted J. J. 515 7th st, Washington, D. C.
Harrop & Zerbe, 188 W. 5th st, Cincinnati, Ohio
Hathaway J. G. 28 School st, Boston, Mass.
Haupt Bros. 209 S. 4th st, Philadelphia, Pa.
Hayes A. L. 95 Milk st, Boston, Mass.
Hector Geo. Eighth av. c. W. 45th st, N. Y.
Herthee & Co. 221 Olive st, St. Louis, Mo.
Heylmun & Kane, 510 F. st, Washington, D. C.
Higgins Charles M. 10 Spruce st, N. Y.
Hill W. C. 530 9th st, Washington, D. C.
Hill & Church, 617 7th st, Washington, D. C.
Hill & Dixon, 40 Dearborn st, Chicago, Ills.
Hoffhelms R. York, Pa.
Hoffmann Louis C. 13 B'way, N. Y.
Holloway & Blanchard, 608 F. st, Washington, D.C.
Hood H. P. 94 S. Delaware st, Indianapolis, Ind.
Hosea L. M. 10 Pike's Opera bldgs, Cinci. Ohio.
Houghton C. 28 State st, Boston, Mass.
Houghton T. 1333 4½th st, Washington, D. C.
Howard & Co. 810 F. st, Washington, D. C.
Howard G. & W. T. 20 cor. Halliday st, Baltimore, Md.
Howard G. H. & W. T. 707 G. st, Washington, D.C
Howson & Sons 605 7th st, Washington, D. C.
Howson & Sons 119 S. 4th st, Philadelphia, Pa.
Hunter Hugh W. 1132 B'way, N. Y.
Inventors' Institute 28 Cooper Union, N. Y.
James E. 639 F st, Washington, D. C.
Jenks L. P. 252 Washington st, Boston, Mass.
Johnson E. W. & Co. 510 F st, Washington, D. C.
Johnson E. W. & Co. 23 Gouth st, Baltimore, Md.
Johnson & Johnson 639 F st, Washington, D. C.
Johnston A. C. Penn av. & 6th st, Pittsburg, Pa.
Johnston, J. J. Penn av. & 6th st, Pittsburg, Pa.
Jones E. S. 164 Westminster st, Providence, R. I.
Kabus Robert, 376 Bowery st, N. Y.
Kahn, Hanover & Co. 32 Maiden la, N. Y.
Kay J. F. 138 5th av, Pittsburgh, Pa.
Kennedy R. C. 339 6th av, N. Y.
Ketcham & McDougall, 4 Liberty pl, N. Y.
Kleine Charles B, 274 8th av, N. Y.
Knight Bros. 633 F st, Washington, D. C.
Knight Bros. 317 Olive st, St. Louis, Mo.
Kock C. L. 23 Gouth st, Boston, Mass.
Kreuter Ferdinand, 166 E. Houston st, N. Y.
Lacey R. S. & A. P. 604 F. st, Washington, D. C.
Laurencot Jos. B. 33 Maiden la, N. Y.
Leggett & Leggett, 607 7th st, Washington, D. C.
Lehman F. A. 517 7th st, Washington, D. C.
Lehman T. F. 50 6th av, Pittsburgh, Pa.
Levy, Dreyfus & Co. 11 Maiden la, N. Y.
Lewis O. D. 131 5th av, Pittsburgh, Pa.
Loeb Leopold, 2182 2nd av, N. Y.
Lombard, N. C. 40 State st, Boston, Mass.
Lotz W. H. 95 5th av, Chicago, Ills.

Digitized by Google

Patent Solicitors—*continued.*

Luckstone Charles S, 32 Beekman pl, N. Y.
McAllister Thomas H. 49 Nassau st, N. Y.
McCleary F. O. 509 7th st, Washington, D. C.
McDonald J. H. 802 F st, Washington, D. C.
McFarland J. L. 517 7th st, Washington, D. C.
McIntire W. C. 513 7th st, Washington, D. C.
Mahon A. 637 F st, Washington, D. C.
Major William E. 42 Maiden la, N. Y.
Mann & Co. 116 W. Balto st, Baltimore, Md.
Mason, Fennick & Lawrence 802 F st, Washington, D. C.
Masson, E. E. 615 7th st, Washington, D. C.
Melaye Charles, 80 Nassau st, N. Y.
Merill J. H. 511 7th st, Washington, D. C.
Meyer Curt W. 11 Dey st, N. Y.
Meyer's A. Sons, 97 William and 303 4th av, N.Y.
Meyrowitz Bros. 297 4th av, N. Y.
Miller Bros. 1213 B'way, N. Y.
Miller Marks, 86 Nassau st, N. Y.
Mills & Lathiop, 617 Louisiana av, Washington, D. C.
Mister J. W. 617 7th st, Washington, D. C.
Moody C. D. 421 Olive st, St. Louis, Mo.
Moore J, 50 Pike's Opera bldg, Cincinnati, Ohio
Morekworth H. 226 Vine st, Cincinnati, Ohio
Morill Charles, 64 College pl, N. Y.
Morris William E. 335 B'way, N. Y.
Munday Evarts, 69 Honore bldgs, Chicago, Ills.
Munn & Co. 261 B'way, N. Y. & Washington, D.C.
Munn & Co. 7th & F sts, Washington, D. C.
Murray G. J. 28 Wiggins block, Cincinnati, Ohio
Myers & Co. 940 F st, Washington, D. C.
Nash & Co. 133 S. 2nd st, Philadelphia, Pa.
National Scientific Association, 97 Clark st, Chicago, Ills.
Neale C. A. 703 7th st, Washington, D. C.
Newman Moses, 167 Rivington st, N. Y.
Newton J. L. 27 Pembroke sq, Boston, Mass.
N. Y. Optical Co. 43 Maiden la, N. Y.
Norris J. L. 501 F st, Washington, D. C.
Nottingham, J. R. 515 7th st, Washington, D. C.
Oneil A. New Britain, Conn.
Orth H. 529 7th st, Washington, D. C.
Osborn, Tuttle & Osborn, New Haven, Conn.
Osgood Worth, 43 Astor h, N. Y.
Page Parker W. 120 B'way, N. Y.
PAINE & LADD 412 5th st, Washington, D. C, *See index to advertisers*
Park A. F. Troy, N. Y.
Park Benjamin & Bro. 235 B'way, N. Y.
Parkhurst A. J. Oskalooa, Iowa & Indianapolis, Ind.
Parodi & Bellati, 48 Centre st, N. Y.
Parkinson J. G & R. H. 41 Pike's Opera bldgs, Cincinnati, Ohio.
Patterson John M. 91 Grant st, Pittsburg
Peckham William H. 6 Liberty pl, N. Y.
Perce & Hallett, 3 Butler exch, Providence, R. I.
Perdrieux E. L. 426 Walnut st, Philadelphia, Pa.
Perkins J. M. 809 L st, Washington, D. C.
Pfeiffer Jacob, 550 Grand st, N. Y.
Pierce A. M. Astor House, N. Y.
Pike's, Benjamin, Son & Co. 928 B'way, N. Y.

Patent Solicitors—*continued.*

Pilger Charles L. 65 Fourth av, N. Y.
POPE, EDGECOMB & BUTLER, 32 PARK PLACE, N. Y. Successors to Frank L. Pope, Solicitors of United States and Foreign Patents for Electrical Inventions, experts in all proceedings in Electrical Patent causes
Pope Frank L. 32 Park pl. *See index to advertisers*
Porter & Hutchinson, 69 Devonshire st, Boston, Mass.
Pootley C. E. 505 9th st. Washington, D. C.
Pratt Arthur, 75 Nassau st, N. Y.
Prentice James, 176 B'way N. Y.
Prindle & Co. 515 7th st, Washington, D. C.
Quimby Edward E. 64 College pl, N. Y.
Rainey & Hosea, 60 Johnston bldgs, Cincinnati, Ohio
Randolph Mahlon, 13 Park row, N. Y.
Raymond F. F. 29 Pemberton sq, Boston, Mass.
Reese F. M. 108 Diamond st, Pittsburgh, Pa.
Rehm William T. Third av. N. 151 st, N. Y.
Rice L. C. 1 Pemberton sq, Boston, Mass.
Riemenschneider Louis, 130 Fulton st, N. Y.
Ritter F. W. 701 7th st, Washington, D. C.
Ritzmann Charles L. 943 B'way, N. Y.
Robertson T. J. W. 820 F st, Washington, D. C.
Rosenberg Soloman, 404 Grand st, N. Y.
Rothschild Herman, 38 Bowery st, N. Y.
Rudman Herman, 92, Essex st, N. Y.
Sabine John B. 102 B'way, Room 20, N. Y.
Schaumberg A. 1 St. Paul st, Baltimore, Md.
Scheidig John & Co. 43 Maiden la, N. Y.
Scholfield S. 50 Westminster st, Providence, R.I.
Schrauer Louis, 228 E. 34th st, N. Y.
Seely L. W. 701 7th st, Washington, D. C.
Semmons Joseph H. 687 B'way, N. Y.
Serrell Lemuel W. 140 Nassau st, N. Y.
Seymour H. A. 607 7th st, Washington, D. C.
Shaw, C. A. 5 Cordt st, Boston, Mass.
Shaw W. S. 352 Main st, Buffalo, N. Y.
Shawbridge & Taylor 903 Walnut st, Philadelphia, Pa.
Shedlock John D. 39 B'way, N. Y.
Shepard J. New Britain, Conn.
Simonds W. E. Hartford, Conn.
Sleeper C. F. 69 Devonshire st, Boston, Mass.
Slicer C. H. 841 Fageth st, Baltimore, Md.
Smith A. M. 637 F. Washington, D. C.
Smith P. B. 45 Major bldg, Chicago, Ills.
Smith R. D. O. 615 F. Washington, D. C.
Snow C. A. & Co. 709 G. Washington D. C.
Somes, F. C. 707 G. Washington D. C.
Soule & Kookogey, 719 Market sq, Washington, D. C.
Spear E. 701 7th st, Washington, D. C.
Spencer A. H. 28 State st, Boston, Mass.
Spencer Optical Mfg. Co. 11 Maiden la, N. Y.
Stansbury & Munn, St. Cloud bldg, Washington, D. C.
Steam N. W. 513 7th st, Washington, D. C.
Stem & Peck, 21 Pikes Opera bldg, Cincinnati, Ohio.
Stem & Peck 75 W. 4 st, Cincinnati, Ohio.
Stendicke August, 240 Pearl st, N. Y.

Digitized by Google

Patent Solicitors—*continued.*

STETSON THOMAS D. 23 Murray st, N. Y.
Stevenson J. H. 100 5th av, Pittsburgh, Pa.
Stoner D. 116 Washington st, Chicago, Ills.
Storer Jacob J. 59 Astor h, N. Y.
Stoughton A. B. 615 7th st, Washington, D. C.
Sussfeld, Lorsch & Nordlinger, 13 Maiden la, N. Y.
Suttie William J. 39 Maiden la, N. Y.
Sweet P. H. jr. & Co. 820 F. Washington, D. C.
Tanner, A. M. 425 7th st, Washington, D. C.
Tasker, J. C. & Co. 635 F. Washington, D. C.
Teschemacher P. E. 328 Washington st, Boston, Mass.
Thayer Anson P. 86 Astor h, N. Y.
Thompson H. M. 712 Pine st, St. Louis, Mo.
Tibbitts G. W. 208 Superior st, Cleveland, Ohio.
Toulmin M. 942 O. Washington, D. C.
Towles G. B. 529 7th st, Washington, D. C.
Townsend H. C. 234 B'way, N. Y.
Tracy, Dyer & Willeur, 303 Enclid av, Cleveland, Ohio.
Traver A. Troy st, N. Y.
Treadwell Eugene, 335 B'way, N. Y.
Tucker & Bishop, 17 7th st, Washington, D. C.
Twohig J. F. 21 Pikes Opera bldg, Cincinnati, Ohio.
Usener & Lembke, 130 Fulton st, N. Y.
Ustick S. 134 S. 4th st, Philadelphia, Pa.
Vansantvoord & Hauff, 44 Park row, N. Y.
Voorhees J. H. St. Cloud bldg, Washington, D.C.
Waldstein Henry, 41 Union sq, N. Y.
Wales William, 361 W. 34th st, N. Y.
Wales William jr. 261 B'way, N. Y.
Walker D. 89 Court st, Boston, Mass.
Watson C. H. & Co. 605 7th st, Washington, D. C.
Weaver N. Phœnixville, Pa.
Weber Philip, 100 E. 14th st, N. Y.
Weiskopf Emanuel, 182 Centre st, N. Y.
West & Bond, 204 Dearborn st, Chicago, Ills.
Whitman C. S. 1477 G. st, Washington, D. C.
Whitney James A. 140 Nassau st, N. Y.
Wiedersheim J. A. 110 S. 4th st, Philadelphia, Pa.
Wilhelm & Bonnor, 248 Main st, Buffalo, N. Y.
Williams H. W. 258 Washington st, Boston, Mass.
Williams R. D. cor. Balto & Holliday sts, Baltimore, Md.
Wilson J. A. Zanesville, Ohio.
Wintersdorff Leon, 71 Nassau st, N. Y.
Wood & Boyd, 4th & Main sts, Cincinnati, Ohio.
Woolf Bros. 75 Nassau st, N. Y.
Woolf Samuel, 309 B'way, N. Y.
Woolman George S. 116 Fulton st, N. Y.
Wright C. D. & Brown, 31 Pemberton sq, Boston, Mass.
Zackerle A. E. 1837 Frankford av, Philadelphia, Pa.

Pattern Makers.

F.—Modèles (Fab. de).
G.—Modelleur.

Abel Michael, 508 W. 24th st, N. Y.
Burrows William, 85 Beekman st, N. Y.
Collins Edward, 127 Worth st, N. Y.
Daniel Thomas, 60 Fulton st, N. Y.
Dassau Edward, 145 Centre st, N. Y.
Davis Henry J. 12 Dutch st, N. Y.
Hoffman Anton A. r 234 Broome st, N. Y.
Jay James M. r 43 Centre st, N. Y.
Kennedy Daniel, 4 Gold st, N. Y.
Lancaster Joseph R. 244 Water st, N. Y.
McVery Alexander, White n Centre sts, N. Y.
Merckling Andrew, 34 S. 5th av, N. Y.
Morrell Samuel, r 59 Ann st, N. Y.
O'Gorman Michael, Franklin c Centre st, N. Y.
Oliver & Co. 33 Park row, N. Y.
Paul's A. Sons, 515 W. 34th st, N. Y.
Pither William, r 247 Spring st, N. Y.
Pitz John, 323 E. 22nd st, N. Y.
Quick E. B. & Brother, 818 Fifth st, N. Y.
Samuelson Francis, 38 Gold st, N. Y.
Schuck John G. 101 Wooster st, N. Y.
Seagrave Owen, White c Centre st, N. Y.
Sickels John, 145 Bank st, N. Y.
Thompson William G 90 Fulton st, N. Y.

Philosophical Apparatus.

F.—Appareils scientifiques.
G.—Wissenschaftliche apparate.

Benjamin Edmund B. 6 Barclay and 12 Vesey sts, N. Y.

Phosphor Bronze Manufacturers.

F.—Phosphore Bronze (Fab. de).
G.—Phosphor Bronze—Fabr.

Phosphor Bronze Smelting Co. (The) Limited, 512 Arch st, Philadelphia, Pa.

Photographic Companies.

F.—
G.—

AMERICAN PHOTO-LITHOGRAPHIC CO Evening Post bldg, Room F. cor. B'way Fulton sts, N. Y.

Photographic Engravers.

F.—
G.—

Boston Photographic Engraving Co. 11 Cornhill, Boston, Mass.
Crosscup & West, 702 Chestnut st, Philadelphia.
Electro-Engraving Co. 66 Reade st, N. Y.
Fish Wm. R. 5 Chatham row, Boston, Mass.
Graphic Co. 41 Park pl, N. Y.
Heliotype Printing Co. 211 Iremont, Boston, Mass.

Digitized by Google

Photographic Engravers—*continued.*

Leggo Bros. 39 Park row, N. Y.
Levytype Co. 7th & Chestnut sts, Philadelphia.
Lewis Photographic Engraving Co. 37 Hanison av, Boston, Mass.
Moss Engraving Co. 535 Pearl st, N. Y.
Photo-Electric Engraving Co. 20 Cliff st, N. Y.
Photographic Electrotype Co. 63 Oliver st, Boston, Mass.
Photographic Engraving Co. 728 Chestnut st, Philadelphia.
Photographic Engraving Co. 67 Park pl, N. Y.
Rockwood Engraving Co. Chatham st, (Bridge Entrance) & Union sq, N. Y.
ROCKWOOD PHOTOGRAPHIC ENGRAVING CO., 15 City Hall sq, N. Y.
U. S. Engraving Works, 22 College pl, N. Y.
U. S. Photographic Engraving Co. 7 Murray st, N. Y.

Platers in General.

F.—Galvanoplastes.
G.—Galvanische Versilberer.

Adams Nickel Pltg. & Mfg. Co. S. Windham, Ct
Albany N. P. Co. corner Pearl & Pleasant sts, St. Louis, Mo.
Albro H. Jesse & Kane, Springfield, Mass.
Allen C. A. 182 State st, Chicago, Ills.
Alwood W. J. & Co. Amesbury, Mass.
Am. Nickle Works, Camden, N. J.
Am. Plating Co. 302 Washington st, Boston.
Anderson A. T. 38 Washington st, Chicago, Ills
Atwood & Wentworth, Portland, Me.
Ayres A. W. Northampton, Mass.
Baker G. T. 327 Main st, Buffalo, N. Y.
Barbour C. S. New Haven, Conn.
Bower Bros. 197 Madison, Chicago, Ills.
Brigg J. & Son, 65 Clifford st, Providence, R. I.
Bromley J. C. New Haven, Conn.
Brown H. E. 191 Eddy st, Providence, R. I.
Buck W. Y. & Co. Willimantic, Conn.
California Electric Works, 134 Sutton st, San Francisco, Cala.
Callaghan J. 26 Potter st, Providence, R. I.
Chamberlain H. B. Louisville, Ky.
Choyer T. 287 Main st, Buffalo, N. Y.
Clark G. T. Pittsfield, Mass.
Clark J. & Co. 10 E. 6th st, Cincinnati, Ohio.
Cleveland Nickel Works, 203 Canal st, Cleveland, Ohio.
Continental Silver Pltg. Wks. E. Haddam, Conn.
Cooke Bros. 139 2nd ave. Pittsburgh, Pa.
COURTENAY & TRULL, 17 Dey st, N. Y.
See index to advertisers.
Coville E. R. & Co. 119 Orange st, Providence, R. I.
Crinty C. corner Race & Longworth st, Cin. Ohio.
Day & Barker, 227 Washington st, Boston
Denniston E. G. 653 Mission st, San Francisco, Cala.
Dental Mfg. Co. 5 S. Division, Buffalo, N. Y.
Dubois P. 391 Washington st, Buffalo, N. Y.
Eakins S. jr. 618 Chestnut st, Philadelphia, Pa.

Platers in General—*continued.*

Fowler Pltg. Co. New Haven, Conn.
Fulmer L. A. Indianapolis, Ind.
Fyles T. H. Brockton, Mass.
Gannis A. 202 Brown st, Philadelphia, Pa.
Gibney T. G. Fall River, Mo.
Gill R. 165 Seneca st, Cleveland, Ohio.
Gordon A. 66th 5th ave. Pittsburgh, Pa.
Gordon & Co. 37 N. Calvert st, Baltimore, Md.
Grafman D. N. & Co. 87 Friendship st, Providence, Pa.
Graves F. S. 58 State st, St. Louis, Mo.
Griffin & Mount, 45 Franklin st, Chicago, Ills.
Hague W. E. 139 2nd ave. Pittsburgh, Pa.
Hall W. H. & Co. Middletown, Conn.
Hartley C. H. 732 Sansom, Philadelphia, Pa.
Hawkins J. M. 620 Merchant st, San Francisco, Cala.
Heard G. M. & Co. 109 Ontario, Cleveland, Ohio
Henderson J. H. Holyoke, Mass.
Eccelsior Nickel Pltg. Wks. 82 Orange st, Providence, R. I.
Ekelund E. 620 Merchant st, San Francisco, Cala.
Elleman J. 9 Matthewson st, Providence, R. I.
Elliot C. E. 602 Cherry st, Philadelphia, Pa.
Ellison A. 1 Duquesne way, Pittsburgh, Pa.
Enoch O. 38 Washington st, Chicago, Ills.
Ewin H. Hartford, Conn.
Fitzmorris R. New Haven, Conn.
Hobart A. H. 49 Pick st, Providence, R. I.
Hoight R. Louisville, Ky.
Holt A. & Co. 9 Calendar st, Providence, R. I.
Homan & Co., 12 E. 7t2 st, Cincinnati, Ohio.
Jacobus H. S. Wilmington, Del.
Jennings H. J. Worcester, Mass.
John F. 506 Race st, Philadelphia, Pa.
Johnson & Schule, 5 Post st, San Francisco, Cala.
Kinsley J. R. 69 W. 6th st, Cincinnati, Ohio.
Kroger F. & Co. 13 Trinity st, San Francisco, Cala.
Lake Mfg. Co. Waterbury, Conn.
Lang C. 55 E. Seneca st, Buffalo, N. Y.
Large R. 68 N. Howard st, Baltimore, Md.
Lawler W. 622 Clay st, San Francisco, Cala.
Leary E. 13 Church st, St. Louis, Mo.
Leavenworth F. C. New Haven, Conn.
Lederer G. M. & Co. 731 Mission st, San Francisco, Cala.
Lewis Wm. T. 165 Eddy st, Providence, R. I.
Lincoln S. T. & Co. 12 Page st, Prov. Pa. R. I.
Louric, Shurmer & Massey, 20 Centre st, Cleveland, Ohio.
Lovitt J. 10 Weybossit st, Providence, R. I.
Lowe T. H. & Son, 107 Dorrance st, Prov. R. I.
Lundy T. 7 3rd st, San Francisco, Cala.
Lyman & Twill, Clinton, Mass.
McKim & Smith, 413 Locust st, St. Louis, Mo.
March W. C. & Son, Ware, Mass.
Martell J. 623 Sacramento st, San Francisco, Cala.
Miller H. 225 Elm st, Cincinnati, Ohio.
Morrison & Corcoran, 120 Main st. Cin. Ohio.
Norwich Nickel Plate Co. Norwich, Conn.
Oakley O. B. 638 Market st, San Francisco, Cala.
O'Brien J. 120 Exchange st, Philadelphia, Pa.

Digitized by Google

Platers in General—*continued.*

Offutt & Brockmann, 261 Randolph, Chicago, Ills.
Particelli A. 652 Mission st, San Francisco, Cala.
Pearson M. Portland, Me.
Pelkin W. L. & H. C. Hartford, Conn.
Peoria Pltg. Works. Peoria, Ills.
Pfeiffer & Collis, 6 Calham pl, Chicago, Ills.
Powell Wm. & Co. 247 W. 5th st, Cinn. Ohio.
Poynter & Moreland, Wilmington, Del.
Pratt & Co. 52 Terrace st, Buffalo, N. Y.
Purtell & Hanman, 66 S. Canal st, Chicago, Ills.
Putnam W. V. Rahway, N. J.
Queen City Nickel Pltg. Wks. 101 W. 5th st, Cincinnati, Ohio.
Regney P. 665 Mission st, San Francisco, Cala.
Richards J. L. Springfield, Mass.
Ristine C. 114 N. 2nd st, Philadelphia, Pa.
Robinson W. L. Worcester, Mass.
Rochicioli R. F. 8 Tyler st, San Francisco, Cala.
Roddick T. Waltham, Mass.
Rogers Wm. Mfg. Co. Hartford, Conn.
Ronde Island Nickel Pltg. Wks. 28½ Potter st, Prov. R.I.
St. Louis Nickel Pltg. Wks. 115 Morgan st, St. Louis, Mo.
Saner A. & Co. Louisville, Ky.
Sargent F. H. New Bedford, Mass.
Saville B. 209 N. 3rd st, St. Louis, Mo.
Seaman W. H. Greenfield, Mass.
Schnuck & Co. Derby, Conn.
Schoonmaker D. Springfield, Mass.
Schulze L. & Son, 104 N. 6th st, Phila. Pa.
Scott & Ward, Indianapolis, Ind.
Shepman W. E. 41 Gerry st, San Francisco, Cala
Show A. W. & Co. Indianapolis, Ind.
Smith G. B. 609 N. 7th st, St. Louis, Mo.
Spink S. P. & Sons, 74th st, San Francisco, Cala.
Stecher & Baumganten, 460 Dillwyn st, Phil. Pa.
Stuart & Banker, Bangor, Me.
Sturdy G. H. & Co. 209 Pine st, Prov. R. I.
Sturdy J. E. 190 Eddy st, Providence, R. I.
Taunton Nickel Pltg. Co. Taunton, Mass.
Textor H. Louisville, Ky.
Tilmay J. Portland, Me.
Titus & Walker, Amesbury, Mass.
Tuft J. F. 132 Clark st, Chicago, Ills.
Turner E. S. & Co. 4 N. La Salle, Chicago, Ills.
Union Nickel Pltg. Works. 129 Dorrance st, Providence, R. I.
Union Pltg. Wks. 259 Randolph st, Chicago, Ills.
UNITED STATES ELECTRIC LIGHTING CO. 120 B'way, N. Y. *See index to advertisers.*
Valley S. P. Wks, 305 N. 7th st, St. Louis, Mo.
Vannatta S. K. 803 Washn. ave. St. Louis, Mo.
Walker F. P. 627 Arch st, Philadelphia, Pa.
Warren & Ward, Bridgeport, Conn.
Wild J. 15 S. 10th st, St. Louis, Mo.
Withers G. B. 14 James st, St. Louis, Mo.
Young M. 131 Dorrance st, Providence, R. I.
Zante D. 190 Jessie st, San Francisco, Cala.

GOLD.

Burchell R. W. 92 1st st, E. D. Brooklyn, N.Y.
Graves G. 308 Fulton st, Brooklyn, N. Y.

Platers in General—*continued.*

GOLD AND PLAIN.

Bay State Pltg. Wks. 28 Beach st, Boston.
Boot Pltg. Co. 90 Sudbury st, Boston, Mass.
Carleson A. D. 21 Brattle st, Boston, Mass.
Chamberlain J. F. 21 School st, Boston, Mass.
Crumby & Settle, 372 Atlantic ave, Boston.
Dodge E. H. 4 Dock sq, Boston, Mass.
Emanuels E. J. 83 Sudbury, Boston, Mass.
Friedli J. 9 Bromfield st, Boston, Mass.
Harding, Newall & Co. 28 School st, Boston
Havens S. & Co. 96 Court st, Boston
Hillman J. J. 24 Sudbury st, Boston
Holt J. 55½ Sudbury st, Boston
Laforme V. 23 Water st, Boston
Lindsay J. N. & Co. 237 Washington st, Boston
Lowell C. H. & Co. 548 Washington st, Boston
Muldoon H. P. 71 Sudbury st, Boston
Nash R. R. 17 Province st, Boston
N. E. Pltg. Co. 372 Atlantic ave. Boston
Rankin E. D. 50 Sudbury st, Boston.
Russell S. H. 8 Province st, Boston
Turner & Kanpp 383 Washington st, Boston

GOLD AND SILVER.

Bataille F. 142 Berger st, Newark, N. J.
Bunnell & Demarcot, 587 Broad st, Newark, N.J.
Coulan B. & Co. 45 Lawrence st, Newark, N. J.
Cooke J. 65 Hamilton st, Newark, N. J.
Field C. 145 Green st, Newark, N. J.
Fisher A. 21 West st, Newark, N. J.
Force A. 61 Mechanic st, Newark, N. J.
Knehnhold F. B. & Co. 303 N. J. R. R. ave. Newark, N. J.
Moore & Price, 892 Broad st, Newark, N. J.

NICKEL.

Anderton R. L. 210 Grand st, N. Y.
Bailey, Eachus & Shoe, 428 Walnut st, Phil. Pa.
Baumgarten L. & Co. 141 Elm st, N. Y.
Bay State Nickel Pltg. Wks. 77 Travers st, Boston
Boot Nickel Pl. Co. 15 Bowker st, Boston
Buchan C. H. & Co. r. 59 Ann st, N. Y.
Buchanan James C. 90 Fulton st, N. Y.
Colt A. I. 297 B'way, N. Y.
Conlan B. & Co. 41 Lawrence st, Newark, N. J.
Coombs & Kindrick, 58 John st, N. Y.
Davis H. N. & Co. Milwaukee, Wis.
Faber Carl, 13 1st st, E. D. Brooklyn, N. Y.
Greene, Tweed & Co. 118 Chambers & 382 2nd ave. N. Y. Stove nobs & turn keys
Hale David, r. 239 Mercer st, N. Y.
Hattman J. 37½ N. 7th st, Philadelphia, Pa.
Hickey Matthew H. 202 E. 29th st, N. Y.
Holmes & Carry, 88 John st, N. Y.
How J. H. 256 W. 28th st, N. Y.
Huntley S. J. 22 Frankfort st, N. Y.
Jackson Francis D. 158 W. 27th st, N. Y.
Jones Chas. H. 43 Gold st, N. Y.
Jones & Peters, 106 W. 37th st, N. Y.
Kaschau J. Bros. & Co. 138 Centre st, N. Y.
Krous L. 217 Centre st, N. Y.

Digitized by Google

Platers in General—*continued.*

McArthur & Son, Erie, Pa.
McNamara Michael F. 62 Fulton st, N. Y.
Menahan J. Franklin cor. Centre st, N. Y.
Mercel Joseph, 66 New Church st, N. Y.
Mitchell D. Burlington, V. T.
Moore B. F. & Son, 71 Nassau st, N. Y.
Neef G. B. & Co. 214 Quarry st, Phil. Pa.
N. Y. Nickel Plating Co. 239 B'way, N. Y.
Nicond A. 16 Maiden lane, N. Y.
Normandeau Rierre A. 50 Ann st, N. Y.
Owen S. S. & Co. 109 E. 13th st, N. Y.
Pendleton Charles G. 209 Centre st, N. Y.
Penna Aluminium Nickel Wks. Amber & Rush sts, Philadelphia, Pa.
Philadelphia Nickel Pltg. Wks. 1528 Frankfort ave., Phil. Pa.
Price C. E. 243 Arch st, Phila. Pa.
Rauler Juluis, 205 Elm st, N. Y.
Reid & Bros. Reading, Pa.
Richmond & Cherry, 53 Ann st, N. Y.
Riley & Lynch, 17 Mulberry st, Newark, N. J.
Roberts & Havell, 284 Washn. st, Newark, N. J.
Rochrig F. W. 248 Plymouth, Brooklyn
Root & Burrows, Erie, Pa.
Sargeant Mfg. Co. 79 Summit st, Newark, N. J.
Smith W. & Bros. 619 Callowhill st, Phil. Pa.
Starr W. L. & Co. 44 Lawrence st, Newark, N.J.
Stewart & Jones, 54 N. 6th st, Phila. Pa.
Tonkin W. 629 Filbert st, Phila. Pa.
United Nickel Co. 239 B'way, N. Y.
Walker J. 40 Franklin st, Newark, N. J.
Wenzel Adolph. C. 114 Centre st, N. Y.
West Mal. Nickel Co. 45 William st, Newark, N.J.
Welley & Hotchkiss, 47 Ann st, N. Y.
Welling C. G. 88 John st, N. Y.
Wright W. H. Erie, Pa.
Wright Wm. & Co. 62 Hamilton st, Newark, N.J.
Wuterich F. J. cor. White & Elm sts, N. Y.
Yates & Ely, 136 st, & 3rd av, N. Y.
Zucker & Levett Chemical Co. 540, 542, 544 and 546 W. 16th st, N. Y.

SILVER.

Bayley G. D. 217 Adams st, Brooklyn, N. Y.
Coombs T. 360 Fulton st, Brooklyn, N. Y.
Cox T. 172 Fulton st, Brooklyn, N. Y.
Edwards Ja. 60 B'way, Brooklyn, N. Y.
Foothill J. 79 Adams st, Brooklyn, N. Y.
Holmes J. W. cor. Henry & Orange sts, Brooklyn, N. Y.
Mahady G. W. 47 Lafayatte st, Brooklyn, N. Y.
Webster E. G. & Bros. 243 Fulton st, Brooklyn, N. Y.

Platinum Foil Manufacturers.

F.—
G.—

RAYNOR H. M. 25 BOND ST, N. Y.

Platinum Refiners.

F.—Platine (Raffineurs de)
G.—Platinum—Läuterer.

RAYNOR H. M. 25 Bond st, N. Y. *See index to advertisers.*
Victor, Bishop & Co. 47 Nassau st, N. Y.
White S. S. Dental Mfg. Co. 767, 769 and 1260 and 1262 B'way N. Y.
Williams Richard S. 621 Sixth av, N. Y.

Platinum Wire Manufacturers.

F.—Fils de Platine.
G.—Platinum-Draht.

RAYNOR H. M. 25 Bond st, N. Y.

Platinum Wire and Plate.

F.—
G.—

Waters John & Sons, 12 John st, N. Y.

Plumbago Merchants.

F.—
G.—

Baker H. J. & Bro. 215 Pearl st, N. Y.
Bush & Hollingsworth, 39 Dey st, N. Y.
Crampton Brothers, Monroe street, corner Jefferson st, N. Y.

Pneumatic Call Bell Makers.

F.—Sonneries pneumatiques.
G.—Pneumatische Glocken.

Zimdars C. E. 160 W. 27th st, N. Y.

Powder Manufacturers.

F.—
G.—

Atlantic Giant Powder Co. 59 Park pl, N. Y.
CHESTER MICA & PORCELAIN Co. 87 Liberty st, N. Y.
HAMMILL & GILLESPIE, 240 Front st, N. Y.
Hazard Powder Co. 57 B'way, N. Y.
Hecla Powder Co. 57 B'way, N. Y.
Howell William P. 205 Front st, N. Y.
Kneeland Furman L. 87 Beaver st, N. Y.
Laflin & Rand Powder Co. 29 Murray st, N. Y.
Rendrock Powder Co. 240 B'way, N. Y.
Small George S. 59 Park pl, N. Y.
Stitt William, 61 Cedar st, N. Y.

Potteries—for Porous Cups.

F.—Vases poreux (Fab. de).
G.—Poröse Glocken für Batterien.

Badun J. cor. Brush & Smith sts, Brooklyn, N. Y.
Bennett J. 412 E. 24th st, N. Y.
Bieg H. 361 Flushing av, Brooklyn, N. Y.

Digitized by Google

Potteries—for Porous Cups—*continued.*

Boss A. 136 & 3rd av, N. Y.
Brabyn J. L. 213 Navy st, Brooklyn
Carr J. 440 W. 13th st, N. Y.
Casper & Gommerlad, 207 State st, N. Y.
Central Pottery Co. 361 Fushing av, Brooklyn
Cooper A. 181 Eagle st, Brooklyn, N. Y.
Deckler F. 61 Walton st, Brooklyn, N. Y.
Graham Chas. 110 Metro. av, Brooklyn, N. Y.
Haner Joseph, 145 Chrystie st, N. Y.
Henacker John E. 24 Church st, N. Y.
Jansen J. L. 144 Green st, Brooklyn, N. Y.
Lanfersweiler Frank, 519 W. 27th st, N. Y.
Locock L. 255 Wallabout st, Brooklyn
Meyersberg A. (agent) 32 Warren st, N. Y.
Nelson William jr. 24 Old sl, N. Y.
N. Y. Spar & Flint Pulverizing Co. 16 Burling sl, N. Y.
Quenzer Mary 65 av, C. N. Y.
Rader G. W. & Co. 611 W. 51st st, N. Y.
Richardson Robt. 212 Concord st, Brooklyn, N. Y.
Roos F. & Son, 58 N. 11th st, Brooklyn
Schaefer Fred, 85 Clay st, Brooklyn
Smith's A. E. Sons' Pottery Co. 38 Peak st, N. Y.
Stewart & Co. 312 Pearl st, 539 W. 18th st, & ft. W. 19th st, N. Y.
Tresch John 405 W. 50th st, N. Y.
U. S. Brick & Ceramics Mfg. Co. 104 Pearl st, N. Y.

Printers.

F.—
G.—

Electric Signal & Time Register Co. 32 Park st, N. Y.
Rand, McNally & Co. 148/154 Monroe st, Chicago.
Ringler F. A. & Co. 21 & 23 Barclay st, & 26 & 28 Park pl, N. Y.

Promoters and Brokers.

F.—
G.—

DELANO & HAINES, 55, B'way, N. Y. *See index to advertisers.*

Publishers of Scientific Books.

F.—
G.—

NOSTRAND D. VAN, PUBLISHER OF MANY STANDARD WORKS ON ELECTRICITY, ELECTRIC TELEGRAPH AND ELECTRIC LIGHT, CATALOGUE OF WHICH WILL BE SENT ON APPLICATION, 23, MURRAY & 27 WARREN STS, N. Y. CITY.

Rand, McNally & Co. 148/154 Monroe st, Chicago.
Spon E. & F. N. 44 Murray st, N. Y.

Purchasing Agents.

F.—
G.—

CUMMING GEO. 219 E. 18th st, N. Y.

Railroad Offices—Chief.

F.—
G.—

Adirondock R. R. Co. 20 Nassau st, N. Y.
Alabama Great Southern R. R. Co. 35 William st, N. Y.
Albany, Sand Lake and Stephentown R. R. Co. 120 B'way, N. Y.
Allentown Line 435 B'way & Piers 4, 5 & 38, N. R., N. Y.
Alliance & Lake Erie R. R. Co. 5 Cortlandt, N. Y.
Am. Railway Improvement Co. 195 Broadway, N. Y.
Anchor Line Lake & Rail, Pier 4 N. R., N. Y.
Associated Southern Railways, 229 B'way, N. Y.
Atchison, Topeka & Santa Fe R. R. Co. 419 B'way & 2 Bridge st, N. Y.
Atlanta & Charlotte Air Line Railway, 21, Cortlandt st, N. Y.
Atlantic & Ohio R. R. Co. 58 Wall st, N. Y.
Baltimore, Cincinnati & Western Railway Co. 178 B'way, N. Y.
Baltimore & Ohio 21 & 315 B'way, N. Y.
Belleville & Eldorado R. R. Co. 37 Wall st, N. Y.
Belleville & Southern Ill. R.R. Co. 37 Wall st, N. Y.
Bloecker st. & Fulton Ferry R. R. Co. 621 W. 23rd N. Y.
Boston, Hoosac Tunnell & Western R. R. Co. 137 B'way, N. Y.
Broadway & Seventh Av. R. R. Co. 761 Seventh av. N. Y.
Broadway Underground Railway Co. 7 Beekman st, N. Y.
Brooklyn Elevated Railway Co. 48 Wall st, N. Y.
Burlington, Cedar, Rapids & Northern Railway Co. 43 New st, N. W.
Buffalo, N. Y. & Erie R. R. Co. 115 B'y, N. Y.
Buffalo, Syracuse & Albany R. R. Co. 234 B'way, N. Y.
California Southern R.R. Co. 46 Exchange pl, N.Y.
Canada Southern Railway Co. Grand Central Depôt, N. Y.
Central Crosstown R. R. Co. 365 Av. a, N. Y.
Central Pacific R. R. Co. 19 Broad st, and 287 B'way, N. Y.
Central Park N. & E. River R. R. Co, 799, Tenth av. N. Y.
Central R. R. Co. of N. J. 119 Liberty and Pier 14 N. R. N. Y.
Charlestown & Savannah Ry. 315 B'way. N. Y
Charlotteburgh & Green Lake R. R. Co. 98 B'way, N. Y.
Chesapeake & Ohio Railway Co. 19 Broad st, & 229 B'way, N. Y.
Chicago & Alton R. R. Co. 338 B'way, N. Y.
Chicago & Atlanta R'y. Co. 6 Cortlandt st, N. Y.
Chicago, Burlington & Quincy, 317 B'way, N. Y.
Chicago & Grand Trunk Railway Co. 285 B'way, N. Y.
Chicago, Milwaukee & St. Paul Railway Co. 68, William st, and 381 B'way, N. Y.

Digitized by Google

Railroad Offices—Chief—*continued.*

Chicago and North Western Railway Co. 52 Wall st, & 415 Broadway, N. Y.
Chicago, Rock Island & Pacific R. R. Co. 13 William st, & 257 B'way, N. Y.
Chicago, St. Louis & New Orleans R. R. Co. 216 B'way, N. Y.
Chicago, St. Paul, Minneapolis & Omaha Co. 52, B'way, N. Y.
Christopher & Tenth St. R. R. Co. 172 Christopher st, N. Y.
Cincinnati, New Orleans & Texas Pacific Railway Co. 35 William st, N. Y.
Cincinnati, Selma & Mobile Railway Co. 35 William st, N. Y.
Cincinnati & South Eastern Railway Co. 5 Cortlandt, N. Y.
Cincinnati, Virginia & Carolina Railway Co. 52 B'way, N. Y.
Cleveland, Columbus, Cincinnati & Indianapolis Railway Co. 294 Canal st, N. Y.
Cleveland, Youngstown & Pittsburg Railway Co. 5 Cortlandt, N. Y.
Columbus, Chicago & Indiana Central R. R. Co. 57, B'way, N. Y.
Continental Railway Co. 6 Cortlandt, N. Y.
Danville, Mocksville & South Western R. R. Co. 115 B'way, N.Y.
Delaware & Hudson Canal Co. 21 Cortlandt st, N. Y.
Delaware, Lackawanna & Western R. R. Co. 26 Exchange pl. ft. of Christopher & ft, Barclay sts, N. Y.
Denver & Rio 'Grande Railway Co. 45 William st, N. Y.
Dry Dock E. B'way & Battery R. R. Co. 605 Grande & 559 E. 14th, N. Y.
Dubuque and Sioux City R. R. Co. 52 William st, N. Y.
E. Tennessee Va & Georgia R. R. Co. 110, B'way, N. Y.
Eastern Railroad Assn. Grand Central Depôt, N.Y.
Eighth Av. R. R. Co, 828 8th av. N. Y.
Elizabethtown, Lexington & B'way Sandy R. R. Co. 5, Broad st, N. Y.
Empire Line, Pier 38 N. R., N. Y.
Entre Rios Eastern R'y Co. 5 Cortlandt st, N. Y.
Forty-second and Grand St, Ferry R. R. Co. 653 N. 42nd, N. Y.
Forty-second St., Manhattanville & St. Nicholas Av. Railway Co. 208 B'way, N. Y.
George's Creek and Cumberland R. R. Co. 104 B'way, N. Y.
Grand Trunk Railway, 285 B'way, N. Y.
Great Southern Freight & Passenger Lines, 317 B'way & Charlestown SS. Co. Pier, 27 N. R. & Ocean SS. Co. Pier 35 N. R., N. Y.
Great Southern Mail & Kennesaw Route, 303 B'way, N. Y.
Great Western Railway, 317 B'way, N. Y.
Guyandotte Valley R. R. Co. 21 Nassau st, N. Y.
Hannibal & St. Joseph R. R. Co. 78 & 317 B'way, N. Y.
Haslem Bridge, Morrisania & Fordham R. R. Co. 3rd av. W. 133rd st, N. Y.

Railroad Offices—Chief—*continued.*

Haslem River & Portchester R. R. Co. Grand Central Depôt, N. Y.
Haslem River & Portchester Rapid Transit Co. Grand Central Depôt, N. Y.
Highland Junction R. R. Co. 55 B'way, N. Y.
Houston & Texas Central Railway Co. 13, William st, N. Y.
Houston, West St. and Pavonia Ferry R. R. Co. 415 E. 10th st, N. Y.
Illinois Central R. R. Co. 216 B'way, N. Y.
Indiana, Bloomington & Western Railway Co. 115 B'way, N. Y.
Indianapolis, Decatur & Springfield Railway Co. 67 Wall st, N. Y.
Indianopolis & St. Louis R. R. Co. 294 Canal st, N. Y.
International & Great Northern R. R. Co. 195 B'way, N. Y.
International Railway Improvement Co. 195 B'way N. Y.
International Transportation Co. 39 Nassau st, N. Y.
Interstate Improvement & Construction Co. 115 B'way, N. Y.
Kansas City & Southern Railway Co, 55 B'way, N. Y.
Keokuk & Des Moines Railway Co. 13 William st. N. Y.
La Western R. R. 35, B'way, N. Y.
Lake Shore & Michigan Southern R. R. Co. Grand Central Depôt & 252 B'way, N. Y.
Lake Superior Ship, Canal, Railway & Iron Co. 21 Nassau st, N. Y.
Lehigh & Hudson River Railway Co. 161 B'way, N. Y.
Lehigh Valley R. R. Co. 21 Cortlandt and Pier, 2 N. R., N. Y.
L. I. R. R. Co. 115 B'way Pier, 31 E. R. & ft. of E. 34th st, N. Y.
Long Beach Improvement Co. 74 B'way, N. Y.
Louisville & Nashville R. R. Co. 52 Wall st, & 381 B'way, N. Y.
Louisville, New Albany & Chicago, 46 Exchange pl, N. Y.
Lykons Valley R. R. & Coal Co. 13, William st, N. Y.
Manhattan Railway Co. 71 B'way, N. Y.
Marine Railway Co. 115 B'way, N. Y.
Memphis, Selma & Brunswick R. R. Co. 35 William st, N. Y.
Metropolitan Elevated Railway Co. 71 B'way, N. Y.
Mexican Central Railway Co. Ld. 46 Exchange pl, N. Y.
Mexican National Railway Co. 45 William st, N. Y.
Mexican Southern R. R. Co. 2 Wall st, N. Y.
Michigan Central R. R. Co. Grand Central Depôt, N. Y.
Pittsburgh, Bradford & Buffalo Railway Co. 5 Cortlandt, st, N. Y.
Pittsburgh, Ft. Wayne & Chicago, 19 Nassau st, N. Y.

Digitized by Google

Railroad Offices—Chief—*continued.*

Port du Prince R. R. Co. 55 B'way, N. Y.
Richmond & Allegheny R. R. Co. 2 Wall st, N. Y.
Richmond & Danville Extension Co. 145 B'way, N. Y.
Richmond & Danville R. R. Co. 20 Nassau st, N. Y.
Rio Grand Extension Co. 45, William st, N. Y.
Rochester & Pittsburgh R. R. Co. 20 Nassau st, N. Y.
Rome, Watertown & Ogdensburg R. R. Co. 26 Exchange pl, N. Y.
Sabine Pass & Texas Northern Railway Co. 72 B'way, N. Y.
St. Louis, Alton & Terre Haute R. R. Co. 37 Wall st, N. Y.
St. Louis, Iron Mountain & Southern Railway 195 B'way, N. Y.
St. Louis, Keokuk & North Western R. R. Co. 54 William st, N. Y.
St. Louis & San Francisco Railway Co. 17 Broad st, N. Y.
St. Paul & Dulath R. R. Co. 7 Naisau st, N. Y.
Savannah, Florida & Western, 315 B'way, N. Y.
Second Av. R. R. Co. 1822 2nd av. N. Y.
Sixth Av. R. R. Co. 756 6th av. N. Y.
South Carolina Railway Co. 76 Wall st, N. Y.
South Ferry Railway Co. 20 Whitehall st, N. Y.
Southern Pacific R. R. Co. 19 Broad st, & 287 B'way, N. Y.
Southern Railway & Steamship Assn. 291, B'way, N. Y.
Southfield Branch R. R. Co. 42 Pine st, N. Y.
Spuyten, Duyvil & Port Morris R. R. Co. Grand Central Depôt, N. Y.
Star Union Line, 57 & 435 B'way & Piers 4, 5, 16 & 38 N. R., N. Y.
Staton Inland Railway Co. ft. Whitehall, N. Y.
Stearns Railway Improvement Co. 52 B'way, N. Y.
Sterling Mountain Railway Co. 42 Pine st, N. Y.
Suburban Rapid Transit Co. 76 Wall st, N. Y.
Tehuantepec Interocean R. R. Co. 52 B'way, N. Y.
Texas & Colerado Railway Improvement Co. 195 B'way, N. Y.
Texas Mexican Railway Co. 45 William st, N. Y.
Texas & Pacific Railway Co. 195 B'way, N. Y.
Texas Western Railway Co. 38 Broad st, N. Y.
Third Av. R. R. Co. 441, 1119 & 2396 3rd av. N. Y.
Twenty-third St. Railway Co. 621 W. 23rd st, N. Y.
Union Pacific Railway Co. 195 & 287 B'y, N. Y.
United N. J. R. R. & Canal Co. 160 B'way, N. Y.
Utah & Northern, 287 B'way, N. Y.
Utah & Wyoming R. R. Co. 70 B'way, N. Y.
Va, Tennessee & Georgia Air Line, 303, B'way, N. Y.
Vicksburg & Meridian R. R. Co. 35 William st, N. Y.
Vicksburg, Shreveport & Pacific R. R. Co. 35 William st, N. Y.
Wabash, St. Louis & Pacific Railway Co. 195 B'way, N. Y.
Washington & Atlantic R. R. Co. 52 B'y, N. Y.
W. Virginia, Central & Pittsburgh R. R. Co. 2 Wall st, N. Y.
Western R. R. Co. 71 B'way, N. Y.

Railroad Offices—Superintendents.

F.—
G.—Eisenbahn-Superintendenten.

Alabama Great Southern, R. W. Healy, Chattanooga, Tenn.
Atchison, Topeka & Santa Fé, Frank M. Smith, Topeka, Kan.
Atlantic & Pacific, D. B. Sibley, Chicago, Ills.
Baltimore & Botomac, A. W. Sumner, Baltimore, Md.
Baltimore & Ohio, N. S. Hill, Baltimore. Md.
Boston, Concord & Montreal, J. T. Vose, Boston, Mass.
Boston, Lowell & Concord, F. H. Nourse, Boston, Mass.
Buffalo, New York & Phila., J. H. Poole, Buffalo, N. Y.
Buffalo, Pittsburg & Western, E. H. Wetter, Oil City, Pa.
Burl., Cedar Rapids & North, T. Stickney, Cedar Rapids, Ia
Burl. & Missouri River in Neb., Geo. Hargreaves, Omaha, Neb.
Canada Sothern, A. F. Howland, St. Thomas, Ont.
Central Pacific, J. R. Watson, Sacramento, Cala.
Central R. R. of Georgia, H. Yonge, Savannah, Ga.
Central R. R. of New Jersey, B. W. Burnett, N. Y.
Chesapeake & Ohio, A. S. Emmons, Richmond, Va.
Cheshire, H. H. Stone, Keene, N.H.
Chicago & Alton, A. V. Hartwell, Chicago, Ills.
Chicago, Burlington & Quincy, Geo. B. Harris, Chicago, Ills.
Chicago & Eastern Illinois, D. R. Patterson, Chicago, Ills.
Chicago, Milwaukee & St. Paul, J. T. Crocker. Milwaukee, Wis.
Chicago & North-wstn R. W. Hamer, Chicago, Ills.
Chicago, Rock Island & Pac., F. A. Marsh, Chicago, Ills.
Chicago, St. Louis & N. Orleans, H. B. Febiger, New Orleans, La.
Chicago, St. Paul, Minn. & Omaha, W. H. S. Wright, St. Paul. Minn.
Cincinnati Hamilton & Dayt., J. L. Yale, Cleveland, O.
Cincin., Ind., St. Louis & Chicago, G. Tozzer, Cincinnati, O.
Cin. New Orleans & Tex. Pacific, Julius Uihlein, Cincinnati, O.
Cleveland, Col., Cin. & Ind., J. L. Yale, Cleveland, O.
Cleveland & Marietta, R. B. Hoover, Mariotta, O.
Connecticut River, T. Mulligan, Springfield, Mass.
Corning, Cowanesque & Ant., Andrew Beers, Corning, N. Y.
Credit Valley, John Macnab, Toronto, Can.
Delaware (Lumber and Oil), W. D. Hager, 26 Ex. pl, N. Y.
Delaware & Hudson Canal Co., C. F. Young, Albany, N. Y.
Delaware, Lackaw, & West, G. W. B. Cushing, 26 Ex. pl, N. Y.
Denver & Rio Grange, A. B. Garner, Colorado Sp'gs, Col.

Digitized by Google

Railroad Offices—Superintend.—*continued.*

Detroit, Gd. Haven & Milw., John S. Lorimer, Detroit, Mich.
Detroit, Lansing & Northern, Allan Bourn, Detroit, Mich.
Detroit, Mackinac & Marq., E. W. Allen, Marq., Mich.
Dunkirk, Allegh. Val. & Pitts., R. C. Moore, N. Y.
Eastern Kentucky, Geo. Gibbs. Riverton, Ky.
Eastern (Mass.), George J. Fisher, Boston, Mass.
Fitchburg, F. S. Pratt, Boston, Mass.
Flint & Pere Marquette, Geo. C. Cook, East Saginaw, Mich.
Fond du lac, Amboy & Peoria, A. Kinyon, Fond du Lac, Wis.
Grand Rapids & Indiana, A. A. Wiley, Ashton, Michigan
Grand Rapids & Indiana, W. R. Shelby, Grand Rapids, Mich.
Grand Tower & Carbondale, T. M. Williamson, Grand Tower, Ills.
Grand Trunk, John Taylor, Montreal, Can.
Great Western (Canada), G. R. Nash. (Storekeeper), London, Ont.
Hannibal & St. Joseph, T. L. Dunn, Hannibal, Mo.
Housatonic, David S. Draper, Bridgeport, Conn.
Houston, East and West Texas, Paul Bremondt, Houston, Tex.
Houston & Texas Central, A. H. Swanson, Houston, Tex.
Huntingdon & Broad Top Mt., S. B. Knight, Philadelphia, Pa.
Illinois Central, O. Ott, Chicago, Ills.
Indiana, Bloom & Western, H. C. Norton, Indianapolis, Ind.
Indianapolis, Dec. & Springf., H. C. Norton, Indianapolis, Ind.
Indianapolis & St. Louis, J. L. Yale, Cleveland, O.
Intercolonial, T. V. Cook, Moncton, N. B.
International & Great Northern, R. B. Lyle, St. Louis, Mo.
Jeffersonville, Mad. & Ind, William Mullins, Pittsburg, Pa.
Kansas City, Law. & So. Kan., H. P. Jaques, Kansas City, Mo.
Kansas City, Ft. Scott & Gulf., H. P. Jaques, Kansas City, Mo.
Kansas City, St. Jos. & C. B., J. F. Barnard, St. Joseph, Mo.
Lake Erie & Western, E. H. Andress, Lafayette, Ind.
Lake Shore & Mich. Southern, A. C. Armstrong, Cleveland, O.
Lehigh & Lackawanna, E. Hill, Phila., Pa.
Lehigh Valley, L. Chamberlain, Philadelphia, Pa.
Long Island, Benj. Norton, Long Is. City, N.Y.
Louisville, Evansv. & St. Louis, C. F. Martin.
Louisville & Nashville, G. C. Breed, Louisville, Ky.
Louisv., New Albany & Chic., H. O. Nourse, Louisville, Ky.
Macon & Brunswick, C. E. Armstrong, Macon, Ga.
Manhattan Elevated Railway Co. of N.Y., James Tobin, 7 B'way, N. Y.
Memphis & Little Rock, E. K. Sibley, Little Rock, Ark.

Railroad Offices—Superintend.—*continued.*

Mexican Central, Edw. Foot, 96 Ex pl, N. Y.
Mexican National, A. R. Roberts, 47 Wm. st, N.Y.
Michigan Central, Allan Bourn, Detroit, Mich.
Mid. of Canada, C. H. Crofts, Peterborough, Ont.
Midland North Carolina, D. J. Sprague, 7 Cortlandt st, N. Y.
Missouri Pacific, R. B. Lyle, St. Louis, Mo.
Morgan's Louisiana & Texas, C. Trumpy, New Orleans, La.
New Brunswick & Canada, Henry Osburn, St. Stephen, N. B.
New London Northern, G. W. Bentley, New London, Conn.
New York Cent. & Hud. River, R. C. Moore, New York City
New York, Lake Erie & West, John A. Hardenburgh, New York City
New York and New England, W. W. McKim, Boston, Mass.
New York, New Hav. & Hart., R. N. Dowd, New Haven, Ct.
New York, Ontario & Western, C. Clark. Middletown, N. Y.
New York, Penna. & Ohio, J. H. Holway, Cleveland, O.
New York, Prov. & Boston, G. F. Ward, Stonington Ct.
New York, Susq. & Western, H. M. Britton, 93, Liberty st, N. Y.
Norfolk & Western, W. C. DeArmond, Phila, Pa.
North Pacific Coast, W. F. Russell, San Francisco, Cal.
Northern (Canada), C. W. Postlethwaite, Toronto, Ontario
Northern Central, A. W. Sumner, Baltimore, Md.
Northern Pacific, John H. Ames, St. Paul, Minn.
Northern Pacific (West Div.), H. D. Sanborn, Portland, Oreg.
Northern Transit Co., W. W. Butler, Port Huron, Mich.
Ohio & Mississippi, Geo. E. Atwood, Cin., O.
Ohio Southern, G. A. Barnes, Springfield, O.
Old Colony R. R. & S. B. Co., R. W. Husted, Boston, Mass.
Pennsylvania, Enoch Lewis, Philadelphia, Pa.
Pennsylvania Co., William Mullins, Pitts., Pa.
Petersburg, L. E. Clark, Petersburg, Va.
Philadelphia & Reading, W. S. Wilson, Phil., Pa.
Pittsburg, Cincin. & St. Louis, William Mullins, Pittsburg, Pa.
Providence & Springfield, W. Tinkham, Providence, R.I.
Richmond & Allegheny, J. P. Williams, Richmond, Va.
Richmond & Danville, R. H. Ducsbury, Richmond, Va.
Richmond, Fred. & Potomac, T. L. Courtney, Richmond, Va.
Rochester & Pittsburg, G. E. Merchant, Rochester, N. Y.
Rome, Watertown & Ogdens G. W. B. Cushing, 26 Ex pl, N. Y.
Rome, Watertown & Ogdens (Lumber and Oil), W. D. Hager, 26 Ex pl, N. Y.

Digitized by Google

Railroad Offices—Superintend.—*continued.*

St. Louis, Hannibal & Keokuk, Geo. Douglas, Hannibal, Mo.
St. Louis, Iron Mt. & So., R. B. Lyle, St. Louis, Mo.
St. Louis, Salem & Little Rock, H. A. Crawford, St. Louis, Mo.
St. Louis & San Francisco, A. G. Thompson, St. Louis, Mo.
St. Louis, Vand. T. H. & Ind., C. R. Peddle, Terre Haute, Ind.
St. Paul & Duluth, J. G. Callahan, St. Paul, Minn.
St. Paul, Minn. & Manitoba, J. C. Morrison, St. Paul, Minn.
San Francisco & No. Pacific, P. E. Dougherty, San Francisco, Cal.
San Pete Valley, J. E. Bamberger, Salt Lake City, Utah
Savannah, Florida & West, A. A. Aveilhe, Savannah, Ga.
Seaboard & Roanoke, J. A. Walton, Portsmouth, Va
Shenandoah Valley, W. C. DeArmond, 37 & 39 So. 4th st, Phila.
South Carolina, S. B. Pickens, Charlestown, S.C.
Syracuse, Geneva & Corning, Andrew Beers, Corning, N. Y.
Texas Mexican, A. R. Roberts, 47 Wilm st, N. Y.
Texas & New Orleans, P. B. Watson, Houston, Texas
Texas & Pacific, R. B. Lyle, St. Louis, Mo.
Texas & St. Louis, F. W. Paramore, St. Louis, Mo.
Tioga & Elmira State Line, J. A. Drake, Elmira, N. Y.
Toledo, Ann Arbor & Gd. Tr'k., H. W, Ashley, Toledo, O.
Toledo, Cin. & St. Louis, J. H. F. Wiers, Toledo, O.
Toronto, Grey & Bruce, W. Watson, Toronto, Can.
Troy & Boston, D. Robinson, Troy, N.Y.
Union Pacific, A. D. Clarke, Omaha, Neb.
Utah Central & Southern, S. H. Hill, Salt Lake City, Utah
Vicksburg & Meridian, R. W. Healy, Chattanooga, Tenn.
Virginia & Truckee, C.P. Mason, Carson City, Nev.
Wabash, St. Louis & Pacific, R. W. Green, St. Louis, Mo.
Washington & Ohio, R. H. Havener, Alexandria, Va.
West Jersey, Enoch Lewis, Philadelphia, Pa.
Western North Carolina, G. P. Erwin, Salisbury, North Carolina
Worcester & Shrewsbury, Geo. E. Hapgood, Worcester, Mass.

Railroad Supplies.

F.—
G.—Eisenbahn-Lieferanten.

Adam John F. 55 Pine st, N. Y.
Albertson D. T. 95 Liberty st, N. Y.
Allen Paper Car Wheel Co. 240 B'way, N. Y.
Aller A. 109 Liberty st, N. Y.
Am. Mfg. Co 176 B'way, N. Y.
Am. Railroad Switch Plate Co. Ld. 21 Cortlandt st, N. Y.

Railroad Supplies—*continued.*

Ashcroft John, Mfg. Co. 40 John st, N. Y.
Atwood Railway Wheel Co. 57 Astor H. N. Y.
Barr Edward 78 John st, N. Y.
Barrows & Co. 64 B'way, N. Y.
Beadle & Courtney, 1193 B'way, N. Y.
Beardoley D. N. & Co. 9 Murray st, N. Y.
Begg James & Co. 9 Dey st, N. Y.
Blewitt James 332 Seventh av, N. Y.
Brooks E. J. & Co. 10 Cortlandt st, N. Y.
Campbell Wm. H. 19 Union sq, N. Y.
Chapman Henry S. 35 B'way, N. Y.
George Place Machinery Co. 121 Chambers & 103 Reade st, N. Y.
Raxton & Pennell 77 Maiden la. N. Y.
Rogers J. F. & Co. 107 Liberty st, N. Y.
Schlesinger Oscar L 112 Pearl st, N. Y.
Smith Calvin A. 113 Liberty st, N. Y.
Smith Lenox 55 William st, N. Y.
Spencer Benjm. M. 106 Liberty st, N. Y.
Standard Empire Vacuum Brake Co. 57 Cedar st & 445 W. 42nd, N. Y.
Standard Railway Joint Co. 6 Cortlandt st, N. Y.
Suspension Car Truck Mfg. Co. 17 Broad st, N. Y.
Tallman Automatic Car Brake Co. 32 Astor H. N. Y.
Turner Thomas 21 Cortlandt st, N. Y.
Union Iron & Steel Co. 54 William st, N. Y.
U. S. Concave Spring Co. 21 Cortlandt st, N. Y.
U. S. Rolling Stock Co. 35 B'way, N. Y.
U. S. Tube Rolling Stock Co. 5 Cortlandt st, N. Y.
Urquhart John S. successor to Albert Bridges 46 Cortlandt st, N. Y.
Vanderbilt & Hopkins 120 Liberty st. N. Y.
Walton Joseph J. 21 Dey st, N. Y.
Welch & Barnum 54 William st & Spuyten Duyvil, N. Y.
White & Crowell 235 West st, N. Y.
Whiton Augustus S. 58 B'way, N. Y.
Whiton E. N. & Co. 69 Liberty st, N. Y.
Wilkins William B. 115 B'way, N. Y.
Young & Co. 61 William st, N. Y.

Railway Signal Manufacturers.

F.—Signaux de Chemins de fer (Fab de).
G.—Signale für Eisenbahnen.

American Railway Signal Co. 30 Broad st, room 21, N. Y.
Oram J. M. Dallas, Texas
Railroad Safety Lock & Signal Co. 33 Market st, Camden, N. J.
UNION ELECTRIC MANUFG. CO. 7 & 9 Bond st, N. Y. *See index to advertisers.*
Union Switch & Signal Co. Pittsburgh, Penna.

Railway Telegraph Superintendents.

F.—
G.—Superintendenten der Eisenbahn-Telegraphie.

Missouri Pacific Railway Co., Sedalia, Mo. Miller Bullard supt.
New York, Pennsylvania & Ohio Railroad Co. Jamestown, N. Y. J. B. Shaw supt.

Digitized by Google

Railway Teleg. Superintend.—*continued.*

Union Metropolitan Telegraph Co. City Hall, Cleveland, O. J. P. Abernethy supt.

Rivet Manufacturers.

F.—Rivets (Fab. de).
G.—Nietnagel-Fabrikanten.

Hassall Wm. 63 & 65 Elizabeth st, N. Y.

Rubber Belting and Rubber Manufacturers.

F.—Courroies de transmission.
G.—Maschinenriemen—Caoutschouc.

Boston Belting Co. 226 Devonshire st, Boston, Mass. & 112 Duane st, N. Y.
Goodyear Rubber Co. 83 Westminster st, Providence, R. I.
Natl. Rubber Co. 136 Congress st, Boston, Mass.
N. Y. Belting Pkg. Co. 29 Park row, N. Y.

Rubber Fabrics.

F.—
G.—

N. Y. BELTING & PACKING CO. 29 Park row, N. Y.

Scientific Newspapers, Periodicals and Publications.

F.—Journeaux Scientifiques.
G.—Fachzeitschriften.

American Progress, D. J. Tapley, publisher, 13 and 15 Park row, N. Y.
American Progress, Globe Patent Agency, 34 Park row, N.Y.
Appleton's American, 16 vols., $80, N. Y.
Appleton's Dictionary of Applied Mechanics, by Park Benjamin, 2 vols., $10, N. Y.
Appleton D. & Co. 1, 3 & 5 Bond st, N. Y.
Cassell, Petter & Galpin, 745 B'way, N. Y.
Chambers' (Am. Ed.) 10 vols and 4 supplementary $25 to $40, N. Y.
Chrystopher J. W. 47 Dey st, N. Y.
"*Commercial and Railway Telegraphy, the Practical Telegraph Instruction Book*," how to become a proficient Telegraph Operator. 2nd Edition, revised and enlarged by ABERNETHY J. P. Superintendent Telegraph, Cleveland, Ohio. Sent post paid to any address on receipt of $1, cloth $1 25 cents.
Der Techniker (German) *Paul Goepel* (s.m.), Tryon row, N. Y.
Eastes & Lauriat, Boston, Mass.
Electric Illumination (W. J. Johnston), 9 Murray st, N. Y.
Electrician, The, Williams & Co. Nassau st, N.Y.
Encyclopædias published in U.S. are, N. Y.
Harper Bros, Franklin sq, N. Y.
HOUGHTON MIFFLIN & CO. Boston, Mass.
See index to advertisers.
Humboldt Library of Science (m.), Fitzgerald & Co. 30 Lafagette pl, N. Y.

Scientific News. and Periodls.—*continued.*

Johnson's New Universal, 4 vols., $45, N. Y.
Journal of Commerce (w.), Boston
Journal of Science, Adams John G., Chicago, editor.
Journal of the Franklin Institute (m.), Phila.
Journal of the Society of Arts (m.) New Haven, Conn.
Journal, The, of the Telegraph, published by the W. U. T. Co. 195 B'way, N. Y.
Leggatt & Bro. Chambers st, N. Y.
Library (The) Chambers st, N. Y.
Manufacturers Gazette, 259 Washington st, Boston
Mechanical Engineer, E. Watson & Son, 150 Nassau st. (s.m.) N. Y.
Mechanical News (s.m.), Jas. Liffel & Co. 110 Liberty st, N. Y.
Mechanics (w.) *Iron Age* (w.), published by D. Williams, cor. Reade & Church st, N. Y.
MERRIAM G. & C. & CO. Springfield, Mass.
See index to advertisers.
NOSTRAND D. VAN, PUBLISHER AND BOOKSELLER, 23 MURRAY ST. AND 27 WARREN ST, NEW YORK CITY, U.S.A. PUBLISHER OF MANY STANDARD WORKS ON ELECTRICITY, ELECTRIC TELEGRAPH AND ELECTRIC LIGHT, CATALOGUE OF WHICH WILL BE SENT ON APPLICATION.
Operator, The, W.J. Johnston, 9 Murray st, N.Y.
Phillips & Sons, 80 4th av, N. Y.
Popular Science (The) (m.) D. Appleton & Co. 1, 3 & 5 Bond st, N. Y.
Review, The, of the Telephone and Telegraph, Geo. Worthington, 23 Park row, N. Y.
Science (w.), Jno. Michels, Tribune building, N.Y.
Scientific American (The) and *Scientific American Supplement* (both w.), published by Munn & Co. 261 B'way, N. Y.
Scientific Times (The) (w.), D. Swigert & Co. 822 B'way, N. Y.
Scribner, Welford & Armstrong, 743 B'way, N.Y.
Spon E & F. N. 44 Murray st, N. Y.
Van Nostrand D. 23 Murray st. N. Y.
WILLIAMS A. & CO., 283 WASHINGTON ST, BOSTON.

Screw Manufacturers.

F.—Vis (Fab. de).
G.—Schrauben-Fabriken.

Aldrich M, Lowell, Mass.
American Fastening Co. 43 Milk st, Boston, Mass.
American Screw Co. Providence, R. I.
Atlantic Screw Co. Hartford, Conn.
Bliss R. Mfg. Co. Pawtucket, R. I.
Carter & Girard, Cleveland, Ohio
Chicago Screw Co. 106 W. Washn, Chicago
Clenching Screw Co. Milford, Mass.
Estabrook Wires Co. Milford Mass.
Fellows J. 14 Durham pl, Brooklyn, N. Y.
Grilley Co. N. Haven, Conn.
Hartford Machy. Screw Co. Hartford, Conn.
Hotchkiss & Gaylord, Cleveland, Ohio
Joyce & Cridland, Dayton, Ohio

Digitized by Google

Screw Manufacturers—*continued.*

Judson H. 9 Alling st, Newark, N. J.
KeystoneScrewCo.17Venangost,Philadelphia,Pa.
Mac Farren Levy & Co. Indiana & Lasalle, Chicago
McCloud & Crane, Worcester, Mass.
Mass. Screw Co. Holyoke, Mass.
Miles F. S. 205 Quarry, Philadelphia, Pa.
Minter H. Worcester, Mass.
Morris & Essex, Brattleboro, Vt.
Newton J. M. Norwich, Conn.
Parham C. 712 Cherry st, Philadelphia, Pa.
Philadelphia Screw Co. Limited, 12 & Buttonwood sts, Philadelphia, Pa.
Rochester Mach. Screw Mfg. Co. Rochester, N. Y.
Russell, Burdsall & Ward, Portchester, N. Y.
Smith G. C. Lowell, Mass.
Southworth M. & G. Stoughton, Mass.
Standard Mfg. Co. Erie & Kingsbury, Chicago.
Stockwell Screw & Mach. Co. 56 Merwin st, Cleveland, Ohio.
Turner J. Lowell, Mass.
Union Steel Screw Co. Case av & Payne st, Cleveland, Ohio.
Union Steel Screw Co. 91 Lake st, Chicago.
Wilder Elihu, 216 Washington st, Boston, Mass.
Worcester Mach. Screw Co. Worcester, Mass.

Shafting, Pulleys, &c.

F.—Transmissions (Fab. de).
G.—Schäften-Fabriken.

Brown A. & F. 57 Lewis st, N. Y.
George Place Machinery Co. 121 Chambers and 103 Reade st, N. Y.
Howard G. C. 6 Cortlandt st, N. Y. & 1755 Baker st, Philadelphia.
Sellers William & Co. 79 Liberty st, N. Y.

Silver Plate Ware Manufacturers.

F.—
G.—Alfenidewaaren.

Bickley Charles G. 22nd W. 3rd st, N. Y.
Holmes, Booth & Haydens, 49 Chambers st, N. Y.
Manhattan Silver Plate Co. 301 E 22nd st, first door E. of 2nd av, N. Y.
Meriden Brittania Co. 46 E. 14th st. N. Y.
Meriden Silver Plate Co. 30 E. 14th st, N. Y.
Reed & Barton, 686 B'way, N. Y.
Rogers & Brother, 690 B'way, N. Y.
Walker William, 64 Fulton st, N. Y.
Wilcox Silver Plate Co. 6 Maiden la, N. Y.

Smelters.

F.—Fondeurs.
G.—Schmelzer.

Brooklyn Smelting Works, 87 N. 5th st, Brooklyn, N. Y.
Culhane Daniel, 87 N. 5th st, Brooklyn, N. Y.
John Holland, Iridium Smelting Co. Cincinnati, O.
Moore T. J. & Co. Corner Wallabout & Bedford avenue, Brooklyn, N. Y.

Solder Manufacturers.

F.—Soudeur (Fab. de).
G.—Loth-Fabrikanten.

Crooke Smelting & Refining Co. 22 Burling slip, N. Y.

Spelter Manufacturers.

F.—Zinc (Fab. de).
G.—Spiauter—Fabr.

Salgee Oliver, 77 Noble st, Greenpoint, Brooklyn, E. D.

Steam Gauges.

F.—Eprouvettes.
G.—Manometer.

Ashcroft Mfg. Co. Salesroom, 111 Liberty st, Factory, Boston & Lynn st, N. Y.
Heuermann William, 40 John st, N. Y.
McNab & Harlin Mfg. Co. 56 John st, N. Y.
Schmidt A. & Brother, r 41 Centre st, N. Y.
Willing Charles G. 88 John st, N. Y.

Steam Packing.

F.—Garnitures à vapeur (Fab. de).
G.—Liederungsdeckel-Fabrikanten.

Brandt Randolph, 48 Jefferson st, N. Y.
Giese & Glocke, 18 Cedar st, N. Y.
Gilmour Robert M. 82 John st, N. Y.
Gywnn George, 138 W. 26th st, N. Y.
Johns H. W. Mfg. Co. 87 Maiden lane, N. Y.
Kelley Cornelius A. 21 Ann st, N. Y.
Leonard Orville W. 36 John st, N. Y.
Manhattan Packing Mfg. Co. 147 Mulberry st, N. Y.
New York Belting & Packing Co. 29 Park st, N. Y.
Phœnix Packing & Rubber Co. 108 Liberty st, N. Y.
Schwenker W. M. 108 Liberty st, N. Y.
Tupper F. W. 58 & 10 Liberty pl, N. Y.
Winan Herman W. 408 Bleecker st, N. Y.

Steam Pipe & Boiler Covering Makers.

F.—
G.—Liederung für Maschinenröhre und Kessel.

Gilmour Robert M. 82 John st, N. Y.

Steamship Lines.

F.—Bateaux à vapeur.
G.—Dampfschiff-Linien.

Cal & Mex, 10 Market st, San Francisco
Cunard Line, 99 State st, Boston
Oceanic & Oriental Steam for China, 1st Corner Brannan st, San Francisco
Pacific Mail for N. Y. 1st corner Brannan st, San Francisco
West India & Mexican, 30 Carondelet st, N. O.

Digitized by Google

Steel Importers.

F.—Acier (Importeurs d').
G.—Stahl-Importeure.

Abbott Jeremiah & Co. 23 Cliff st, N. Y.
Brown William, 95 John st, N. Y.
Carnegie Andrew, 55 B'way, N. Y.
Ely & Williams, 178½ Water st, N. Y.
Frasse & Co. 62 Chatham st, N. Y.
Graphite Steel Co. 231 B'way, N. Y.
Hogan & Son, 59 Beekman st, N. Y.
Hubbard Charles, 46 Cliff st, N. Y.
Jacobus Edmund Y. 50 Beekman st, N. Y.
Kloman Andrew, Pittsburgh, Pa.
Lee James & Co. 72 Pine st, N. Y.
McBain Thomas A. 540 W. 46th st, N. Y.
Montgomery & Co. 105 Fulton st, N.Y.
Moore Henry, 30 Gold st, N. Y.
Mosher Henry M. 38 Dey street, N. Y.
Prosser Thomas & Son, 15 Gold st, N. Y.
Sanderson George & Co. 30 Gold st, N. Y.
Wardlow S. & C. 95 John st, N. Y.
Young & Co. 61 William st, N. Y.

Steel Manufacturers.

F.—Acier (Fab. d').
G.—Stahl-Werke.

Belcher John H. 44 Astor h, N. Y.

Street Lamp Manufacturers.

F.—
G.—Strassenlampen-Fabrikanten.

Bartlett Lamp Mfg. Co. 35 Howard st, N. Y.
Benney John & Son, 344 Atlantic av, Boston, Mass.
Berry Wm. & Co. 79 North st, Boston, Mass.
Dietz R. E. 54 Fulton st, N. Y.
Globe Gas Light Co. 77 Union st, Boston, Mass.
Globe Street Lamp Co. Eagle av, cor. John st, Morrisania, N. Y.
Patterson Co. Limited, 17 W. Houston st, N.Y.

Sulphate of Copper Merchants.

F.—Sulphate de cuivre (Marchands de).
G.—Kupfervitriol.

Boston Blue Vitriol Works, 167 mr. Washington av, Boston, Mass.

Sulphur Dealers.

F.—Soufre (Marchands de).
G.—Schwefel-Händler.

Gray D. H. 259th st, Brooklyn, N. Y.
Scholes F. 152 Kent av, Brooklyn, N. Y.

Sulphur Refiners.

F.—Soufre (Raffineurs de).
G.—Schwefel-Läuterer.

Battelle & Renwick, 163 Front st, N. Y.
Gray Daniel H. 113 Maiden lane, N. Y.
Passaic Chemical Co. 85 John st, N. Y.
White T. & S. C. 7 Burling st, N. Y.

Switch Manufacturers.

F.—Aiguilles de chemin de fer.
G.—Weichen-Fabriken.

SCHOOLEY W. D. Richmond, Ind., Patent Switch Boards.

Talc Merchants.

F.—Suif (Marchands de).
G.—Talg-Händler.

Bachus John 446 & 454 Cherry st, N. Y.
HAMMIL & GILLESPIE 240 Front st, N. Y.
PETTIT JOHN & BRO. 240 Pearl st, N. Y.
Salomon L. A. & Bro. 216 Pearl st, N. Y.

Tallow and Grease Merchants.

F.—Suif et Graise (Marchands de).
G.—Talg- und Schmiere-Händler.

CHAMBERS BROS. 81 Pine st, N. Y.
Currie, Daniel & Co. 220 Franklin st, Boston, Mass.
D'Oliveira L. & Co. 383 W. 12th st, N. Y.
Donahue M. & P. 654 W. 39th st, N. Y.
FERRIS GEORGE B. & CO. 58 Pearl st, N. Y.
Hoy Michael 129 W. 37th st, N. Y.
Osborn A. 119 Central st, Boston, Mass.
Schlageter and Reis, r. 558 W. 36th st, N. Y.
Schwarzschild & Sulzberger 187 Washington st ft. W. 45th st & W. Washington Market, N. Y.

Telegraph Agents.

F.—Agents Télégraphiques.
G.—Telegramm-Agenten.

Call W. H. Union Star. Mo.

Telegraph Companies.

F.—Télégraphes (Compagnies de).
G.—Gesellschaften zur Beförderung von Telegrammen.

Albany, Troy & Sand Lake, 120 B'way, N. Y.
Am. Atlantic Cable Telegraph Co. 66 B'way, N. Y.
American Automatic Telegraph Company 52 B'way, N. Y.
Am. District, 52 S. 5th av. 239, 407, 575, 791, 946, 1227 & 1369 B'way, 18 & 96 Broad, 101 Wall, 68 Fulton, 666, 817 & 1002 Sixth av., 77 Eighth av., 270 W. 23d, 270 W. 34th, 554 & 1078 Third av., 263 E. 14th, 208 E. 125th, 279 W. 125 & Grand Central depôt, N. Y.
Am. Rapid, 171, 207, 409 & 940 B'way, 14 & 39 Union sq., 73 Gold, 101 Wall, 13 Fulton mkt, 166 Church, 1000 Sixth av., 167 Bowery, 55 William 314 Eighth av., 75 Broad & 175 E. 125th st, N. Y.
American Telegraph & Cable Co. 6 Broad st, N. Y., 21 Royal Exchange, London, E.C., 45 Exchange Buildings, Liverpool
Am. Union Telegraph Co. 135 B'way, N. Y.

Digitized by Google

Telegraph Companies—*continued.*

American Union Telegraph Co. 31 State st, Boston, Mass.

Arrondo Senor Don Bernarda de Director of Telegraphs, Havana, Cuba

Atlantic & Pacific Telegraph Co. 68 Chauncey st, Boston, Mass.

Automatic Signal Telegraph Co. 283 Franklin st, Boston, Mass.

Baltimore & Ohio, 63 & 315 B'way & 106 Wall st, N. Y.

Baltimore & Waverly 49 N. Holliday st, Baltimore, Mass.

Bankers Telegraph Co. main office 26 Broad st, N. Y.; executive office 58 Broadway. J. J. McAlister chf. opr. 26 Broad st, N. Y. A. E. Heston chf. opr. Stock Exchg. N. Y. J. T. Maxwell, Manager, Philadelphia. This company operates commercial lines between N. Y. & Philadelphia only. Principally "stock" business

Bentley Henry Philadelphia Telegraph Co. Phila. Pa.

Berge J. & H. 191 Greenwick st, N. Y.

Board of Trade Telegraph 6 Exchange pl, Chicago, Ills.

Board of Trade Telegraph Co. 137 Whitehall st, N. Y.

Board of Trade Telegraph Co. 22 W. 4th st, Cincinnati, Ohio

Boston Electric Protective Association 56 Summer st, Boston, Mass.

Central Consolidated Cable Office 16 Broad st, N. Y. J. Brown manager, J. B. Case night manager

Central & South Am. Telegraph Co. 37 Wall st, N. Y.

Chicago Telegraph Supply Co. cor. Washington and Market sts, Chicago

City & Suburban Telegraph Assurance 4th st, cor. Walnut st. Cincinnati, Ohio

Continental, 95 Wall, 86 Beaver, 133 Pearl, 71 Worth, & 37 Broad sts, N. Y.

Del. & Hud. Canal Co. Maiden la. & Dean st, Albany, N. Y.

Direct Cable Co. 122 State st, Boston, Mass.

Direct U. S. Cable Co. 16, Broad st, N. Y.

District Telegraph Co. 22 Devonshire st, Boston, Mass.

Domestic Telegraph & Telephone Co. 792 Broad st, N. Y.

Electric Tube Co. 65 Washington st, N. Y.

Electrical Supply Co. 109 Liberty st, N. Y.

Elcelsior Electric Co. 66 Duane st, N. Y.

Exchange Telegraphic Co. 2 Broad st, N. Y.

Fire Alarm and Police, City Hall, Baltimore, Mass.

Fix William, 100, Wooster st, N. Y.

Gamewell Fire Alarm Telegraph Co. 1½ Barclay st, N. Y.

Gold & Stock, 197 & 61 B'way & 185 Fifth av. N. Y.

Gold and Stock Telegraph Co. 110 La Galle st, Chicago, Ills.

Gold & Stock Telegraph Co. 7 Merchants Exchange, Boston, Mass.

Telegraph Companies—*continued.*

Gold & Stock Telegraph Co. 4th st, cor Vine st, Cincinatti, Ohio.

Holmes Burglar Alarm Telegraph Co. 518 B'way N. Y.

International Ocean, 195 & 197 B'way, N. Y.

Kidder J. Mfg. Co. 820 B'way, N. Y.

Kiernan's Telegraph News Agency of London stock, N. Y.

Law, 140 Fulton, County C. H. & 37 P. O. bldg. N. Y.

Light & Force Co. 234 B'way, N. Y.

Long Island Telephone Co. 379 Fulton, Brooklyn, N. Y.

McKay Alex (supt. N. F. Telegraph Co.) St. John's, Newfoundland

Manhattan Dist. Telegraph Co. 35 Vesey st, N. Y.

Manly Telegraph Co. 420 Library st, Phila. Pa.

Merrihew J. Assist. Genl. Supt. West. Union Telegraph Co. N. Y.

Mexican Telegraph Co. 37 Wall, N. Y.

Mutual District Messenger Co. (Limited), 29 Murray, 33 Warren, 48 New, 63 Cedar, 200, 850, 950 & 1209 B'way, 399 Fifth av., 812 & 996 Sixth av. N. Y.

Mutual Union, 45 William, 126 Front, 18 Exchange pl., 9 New, 14 Broad, 18 Wall, 88 Gold, 179 Fulton mkt., 143 West, 187 & 331 G'wich, 221 Pearl, 74 Chatham, 150 Church, 202 Grand, 120, 529 & 1238 B'way, 5 Union sq., 308 W. 23rd, 148, 395, 1301 & 2281 Third av., 996 Sixth av., & 853 Eleventh av. N. Y.

New York Land and Ocean 27 William st, N. Y.

Phila. Local Telegraph Co. 107 So. 3rd st, Phila. Pa.

Phila. Reading and Pottsville Telegraph Co. 204 So. 4th st, Phila. Pa.

Plum W. R. 18 Marine bldgs, Chicago, Ills.

Plume & Alwood Mfg. Co. 18 Murray st, N. Y.

Plush Dr. Saml. M. Supt. Phila. Local Telegraph Co. 107 So. 3rd st, Phila. Pa.

Pneumatic Signal Telegraph Co. 75 Astor house, N. Y.

Postal Telegraph Co. 2 Wall st, N. Y.

Sandy Hook, Quarantine & City Island, 66 Beaver st, N. Y.

Secret Telephone & Telegraph Co. Randall C. A. genl. manager 160 B'way, N. Y.

TILLOTSON L. G. & CO. 5 & 7 Dey st, N. Y. Factory 139 141 143 Centre st, N. Y.

TIME TELEGRAPH CO. Temple ct, Beekman st, N. Y.

UNION ELECTRIC MANFG. CO. 7 & 9 Bond st, N. Y. *See index to advertisers.*

U. S. Electric Fire Alarm Co. 72 Maiden la. N. Y.

Watkins Automatic Signal Telegraph Co. 294 B'way, N. Y.

West India Telegraph and Telephone Co. Ld. Chillicothe, Ohio

Digitized by Google

Telegraph Companies—*continued.*

Western Union, 197, 25, 30, 60, 111, 120, 261, 279, 303, 335, 346, 381, 407, 515, 599, 671, 721, 744, 784, 791, 849, 957, 1111, 1133, 1186, 1202, 1227, 1459, 1464 & 1661 B'way, 68 & 86 Beaver, 8 & 19 Broad, Castle Garden, ft, Whitehall, 37 Whitehall, 3 Bowling gr. Hanover sq., 23 William, 87, 134 & 218 Pearl, 95 Wall, 196 Water, 122 Front, 42 Pine, 21 & 39 Cortlandt, 119 Liberty, Fulton c South, ft. James sl., 66 Gold, 309 G'wich P. O. bldg., 3 Park pl. 341 & 444 Broome, 129 Chambers, 1 Chatham, Chatham c Chambers, 71 Worth, 140 Church, 239 Canal, Piers 15, 28, 33 & 41 N. R., Washn. mkt., 88 Franklin, 11 Mercer, 283, 382 & 614 Grand, Laight c Varick, 386 West, Cooper Union, 196, 225, 232 & 571 Fifth av., Grand Central depôt, Av. D c E. 9th, 203 E. 14th, 119 E. 16th, 39 E. 17th, 12 W. 23rd, ft. W. 23rd, W. 30th c Tenth av., 554, 1080, 1336 & 1529 Third av., E. 124th c Third av., 315, 482 & 639 Fourth av., E. 42nd c Fourth av., 666, 819 & 1002 Sixth av., 61 W. 42nd, 77 Eighth av., Eighth av. c W. 23rd, Eighth av. c W. 34th, Eighth av. c W. 125th, W. 33rd c Eleventh av., Eleventh av. c W. 41st, ft. E. 10th, ft. W. 60th & ft. W. 130th, N. Y.

Wolcott J. E. (manager) W. U. Telegragh Co. Greentown, Ohio

Telegraph Contractors.

F.—Télégraphes (Entrepreneurs de).
G.—Telegraphenbau-Unternehmer.

Union Electric Manfg. Co. 7 & 9 Bond st, N. Y.

Telegraph Engineers.

F.—Télégraphes (Ingeneurs de).
G.—Telegraphenbau-Ingenieure.

Union Electric Manfg. Co. 7 & 9 Bond st, N. Y.

Telegraph Instrument Makers.

F.—Instruments télégraphiques (Fab. d').
G.—Telegraphische Instrumente—Fabr.

Bahr & Zahn, 108 Liberty st, N. Y.
Board of Trade Telegraph Co. 56 La Salle st, Chicago
Boston Electric Co. 550 Washington st, Boston
BOWEN WM. J. Norwalk, Ohio. *See index to advertisers*
Bunnell J. H. & Co. 112 Liberty st, N. Y.
CUMMING & BRINKERHOFF, 219 E. 18th st, N. Y.
Goodrich A. B. 180 Main st, Buffalo, N. Y.
Harbert & Son, 86 La Salle st, Chicago
Jones C. E. & Bro. 51 W. 4th st, Cincinnati, O.
Longstreet J. A. 9 Barclay st, N. Y.
Lyman A. B. 36 South Water st, Clevelaud, O.
Moore Alfred F. 200 & 202 N. 3rd st, Phila. Pa.
Partrick & Carter, 114 S. 2nd st, Philadelphia, Pa.

Telegraph Instrument Makers—*continued.*

POST & CO. Cincinnati, Ohio. *See index to advertisers*
REDDING, JEROME & CO. 30 Hanover st, Boston
Smith T. J. 81 3rd st, (two doors from B'way) Brooklyn, E. D.
Western Electric Co. Chicago, N. Y. Indianapolis
Wirsching Aloys, 28 Centre st, N. Y.

Telegraph Pole Manufacturers.

F.—Poteaux télégraphiques (Fab. de).
G.—Telegraphen-Stangen.

Brownlee & Co. foot of Selby st, Detroit, Mich.
Dow George Q. North Epping, N. H.
Ripley Henry C. East Saginaw, Mich.

Telegraph Submarine Cable Manufacturers.

F.—Télégraphes sous-marins (Fab. de).
G.—Telegraphen-Kabel-Fabrikanten.

Plumb C. 100 Niagara st, Buffalo, N. Y

Telegraph Supplies.

F.—
G.—Telegraphenbau—Lieferanten.

Ahlstrones O. G. 162 William st, N. Y.
American Electric L. Co. 58 New Church st, N. Y.
American Magneto-Electric L. Co. 39 B'way, N. Y.
BOSTON ELECTRIC CO. 550 Washington st. Boston, Mass.
BRUSH ELECTRIC LIGHT CO. Balt. Md
BRUSH ELECTRIC LIGHT CO. Boston, Mass.
BRUSH ELECTRIC LIGHT CO. 783 B'way, N. Y.
BRUSH ELECTRIC LIGHT CO. Chicago, Ohio
BRUSH ELECTRIC LIGHT CO. Cincinnati, Ohio
BRUSH ELECTRIC LIGHT CO. Cleveland, Ohio
BRUSH ELECTRIC LIGHT CO. Phila. Ohio
BRUSH ELECTRIC LIGHT CO. Rochester
BRUSH ELECTRIC LIGHT CO. St. Louis, Mo.
Buckley Thomas M. 61 Cedar st, N. Y.
Buell M. A. & Sons, 76 Frankfort st, Ohio.
Bunnell J. H. & Co. 112 Liberty st, N. Y.
Burrell S. J. Merchants Mfg. & Const. Co. 40 Broad st, N. Y.
Callahan E. A. 34 Pine st, N. Y.
Cincinnati Rl. Rd. & Telegraph Supply Co. 53 W. 2nd st, N. Y.
CUMMING & BRINKERHOFF, 219 E. 18th st, N. Y.
DAVIS & WATTS, Monument, cor. Bureu st, Balt. Md. *See index to advertisers*
Day Austin G. 120 B'way, N. Y.
Edison Electric Light Co. 65 5th av, N. Y.
Electric Merchandising Co. 76 Market st, Chicago, Ills.

Digitized by Google

Telegraph Supplies—*continued.*

ELECTRICAL SUPPLY CO. (The) 109 Liberty st, N. Y.
Electro-Medical Manfg. Co. 38 Union sq, N. Y.
Excelsior Electric Co. 66 Duane st, N. Y.
Fetter Drive Screw Co. 104 John st, N. Y.
Fire Alarm Telegraph Co. Meeting st, Charleston, J. C.
Fitch F. K. 40 Cortlandt st, N. Y.
Frasse Peter A. & Co. 95 Fulton st, N. Y.
Fuller Electric Light Co. 44 E. 14th st, N. Y.
Fuller Electrical Co. Boston, Mass.
Graham William H. 95 Liberty st, N. Y.
Gramme Electric Light Co. 115 B'way, N. Y.
Hall Isaac, 43 r Centre st, N. Y.
HEISLER ELECTRIC LIGHT CO. St. Louis, Mo.
Hobart D. J. room 37, 209 Washington st, Boston, Mass.
Hotchkiss Clark B. 120 B'way, N. Y.
Jablochkoff Electric Light Co. Tribune bldg, N.Y.
Jackson Manufacturing Co. Harrisburg, Pa.
Johnson J. B. 50 Bromfield st, Boston Mass.
Johnson, W. H. Louisville, Ky.
Jones C. E. & Bro. Carlisle bldg. Ohio
Kerner Burglar Alarm Co. 59 Liberty st, N. Y.
Levett & Muller, 540 W. 16th st, N. Y.
Light & Force Co. 234 B'way st, N. Y.
Lyman & Schorndorfer, 36 S. Water st, Ohio
McBain Thomas A. 540 W. 46th st, N. Y.
Merchants' Mnfg. & Construction Co. 54 Broad st, N. Y.
Mexican Telegraph Co. 37 Wall st, N. Y.
Montgomery & Co., 105 Fulton st, N. Y.
Morrison J. F. 7 South st, Balt. Md.
National Underground Electric Co. 216½ Walnut st, Philadelphia, Pa.
Newark Electric Light & Power Co. Newark, N.J.
New York Electric Light Co. 16 Cortlandt st, N. Y.
New York Electro-Motive & Power Co. 13 Dey st, N. Y.
New England Weston Electric Light Co. Boston, Mass.
Pacific Electric Co. 330 Gutter st, San Francisco, Cala.
Patrick & Carter, 114 S. 2nd st, Philadelphia, Pa.
Pearce R. K. 32 S. 7th st, Philadelphia, Pa.
Pearce & Jones, 64 John st, N. Y.
People's Telephone Co. 4 E. 14th st, N. Y.
Pool A. A. & Co. Newark, N. J. (57 N. J. Rl. Rd. av.)
POST & CO. 161 W. Pearl st, Ohio
RAYNOR HIRAM M. 25 Bond st, N. Y.
REDDING JEROME & Co. 30 Hanover st, Boston
Rhode Island Electric Light Co. Providence, R. I.
Rochester Electric Light Co. Rochester, N. Y.
Roebling's Jno. A. & Sons Co. 117 & 119 Liberty st, N. Y. & Trenton, N. J.
Rosseau D. 4th av. near 138th st, N. Y.
Rubber Comb & Jewellery Co. 33 Mercer st, N. Y.
Shaw Matthew, 259 W. 27th st, N. Y.
Shiras J. O. 13 W. 4th st, Cincinnati, Ohio
Swift Electric Light Co. Et. Saginaw, Mich.
Telegraph Supply Co. 71 Ontario st, Cleveland, Ohio

Telegraph Supplies—*continued.*

TILLOTSON L. G. & CO. 5 Dey & 143 Centre sts, N. Y.
Union Switch & Signal Co. Pittsburg, Pa.
United States Electric Light Co. 120 B'way, N.Y.
United States Illuminating Co. 90 Chambers st, N. Y.
W. A. Telegraph Co. (W. Earle) N. Sidney, Nova Scotia
Watt's Telephone Co. Louisville, Ky.
Welmot T. J. Direct Cable Office, Rye, N. H.
Western Electric Mfg. Co. 220 Kinzie st, Chicago & 62 N. Church st, N. Y.
Western Electric Mfg. Co. 68 New Church st, N.Y.
Williams C. jnr. 109 Court st. Boston, Mass.
Wirsching Hoys, 28 Centre st, N. Y.
Wolfe L. W. & Co. 120 S. 14th st, cor. Douglas st, Omara, Neb.

Telegraph, Telephone & Electric Light Supplies.

F.—Usines pour télégraphie, &c.
G.—Lieferanten für Telegraph-, Telephon- und electrische Beleuchtungs-Anlagen.

Electrical Supply Co. 109 Liberty st, N. Y.

Telegraph Wire Manufacturers.

F.—Fils télégraphiques (Fab. de).
G.—Draht-Fabriken für Telegraphie.

Roebling Sons, John A., & Co. 117 & 119 Liberty st, N. Y. Works at Trinton, N. J.
Tobey & Kinsman 145 B'way & 86 Liberty st, N.Y.

Telegraphic Code Ciphers.

F.—Chiffres pour Télégraphie.
G.—Chiffren-Codex für Telegraphisten.

Cumming Geo. 219 E. 18th st, N. Y.
Law S. C. 30 & 32 Cedar st, N. Y.
Shepperson A. B. 25 Beaver st, N. Y.

Telegraphic Construction Tool Makers

F.—
G.—Telegraphen-Construction—Werkzeugmacher.

Frasse & Co. 62 Chatham st, N. Y.

Telephone Apparatus Makers.

F.—Appareils téléphoniques (Fab. d').
G.—Telephon-Apparate—Fabr.

American Bell Telephone Co. (The) 95 Milk st Boston, Mass.
Ansonia Brass & Copper Co. (The) 19 & 21 Cliff st, N. Y.
BOGART A. L. 22 Union sq 4th Avenue side, N. Y.
Boston Electric Co. 550 Washington st, Boston
BOWEN, WM. J. Norwalk, Ohio. *See index to advertisers.*

Digitized by Google

Telephone Apparatus Makers—*continued.*

Brownlee & Co. Office Foot of Shelby st Detroit Mich.
Bunnell J. H. & Co. 112 Liberty st, N. Y.
Electrical Supply Co. 109 Liberty st, N. Y.
Harbert & Son 86 La Salle st, Chicago
Hieatzman A. Howard 346 North Stricker st, Baltimore Md. Telephone Augmenter and Inventor of Wire Diaphragms for Telephones
Holcomb & Co. J. R. Atwater bdgs, Cleveland, Ohio
Jones C. E. & Bro. 51 West Fourth st, Cin. Ohio
Longstreet J. H. 9 Barclay st, N. Y.
Moore Alfred F. 200 & 202, N. Third st, Philadelphia, Pa.
Patterson John M. 91 Grant st, Pittsburgh, Pa.
POST & CO. Cin. Ohio. *See index to advertisers.*
Roebling Sons & Co. John A. 117 & 119 Liberty st, N. Y. Works at Trenton, N. J.
Smith T. J. 81 Third st (two doors from Broadway), Brooklyn, E. D.
TILLOTSON L. G. & CO. 5 & 7 Day st, N. Y. Factory 139, 141, 143 Centre st

Telephone Brackets & Pins.

F.—
G.—Krammen und Nägel für Telephonanlagen.

Freeman & Oneie, Claremont

Telephone Cabinet Work.

F.—Téléphones (Fab. de boît de).
G.—Teleponkasten—Fabr.

C. B. French 1st st & Vernon av. L. 3, N. Y.

Telephone Companies.

F.—Compagnies de Téléphones.
G.—Telephon-Compagnien.

AMERICAN BELL TELEPHONE CO. 95 Milk st, Boston, Mass.
Am. Cont. & Msc. Hall Teleph. Co. 95 Milk st, Boston, Mass.
Am. Speaking, 195 B'way, N. Y.
Am. Speaking Teleph. Co. East Tenes.
Bell Teleph. Co. 4th & Chestnut sts, Philda, Pa. Tobin F. 1,643 Apton st, Philda.
Bell Teleph. Co. 417 Olive st, St. Louis
Central and Western Telph. Co. 110 Lasalle, Chi.
Chicago Teleph. Co. Chicago
Colo. Teleph. Co. Denver, Col.
Commercial Teleph. Co. 468 B'way, Albany
Conn. Teleph. Co. N. Haven, Conn.
East Tennessee, 197 B'way, N. Y.
Eaton Teleph. Co. 65 Henry st, Brooklyn
Ithaca Teleph. Exchange, Ithaca, N. Y.
Metropolitan Telephone & Telegraph Co. 195 B'way, 146 G'wich, 82 Nassau, 97 Spring, 58, 198, 791, 923, 946, 1321 & 1415 B'way, 38 Whitehall, 35 William & 33 Murray, N. Y.
Mexican Teleph. Co. 55 B'way, N. Y.
Narl. Cap. Teleph. Co. 1,413 G st, Wshingtn. D. C.
N. O. Teleph. Exc, 35 Carondelet st, New Orleans

Telephone Companies—*continued.*

N. Y. Elec. Lines Co. Sidney F. Sherbourne Pres. Cap. $50,000. Just incorporated.
People's Telephone & Telegraph Co. 45 William st, 115 B'way, & 4 E. 14th st, N. Y.
Secret Telephone & Telegraph Co. 160 B'way. Randall C. A. Gen. Manager
Southern Bell Telephone & Telegraph Co. 197 B'way, N. Y.
Summers R. 2nd Ave. & 19th st, N. Y.
Telph. Desp. Co. 40 Pearl, Boston
Warth. Nat. G. Manager Midland Telephone Co. Gallipolis, Ohio
West India Telegraph & Telephone Co. (Limited) Chillicothe, Ohio
Whitehall, 35 William & 33 Murray sts, N. Y.
Wiley G. P. Manager Mex. Telephone Co. City of Mexico, Mex.

Telephone Supplies.

F.—
G.—Lieferanien für Telephonanlagen.

BOSTON ELECTRIC CO. 550 Washington st, Boston, Mass.

Telephone Wire Manufacturers.

F.—Fils téléphoniques (Fab. de).
G.—Telephondraht-Fabriken.

Plumb C. 100 Niagara st, Buffalo, N. Y.

Tin Foil.

F.—Feuilles d'étain (Fab. de).
G.—Staniol-Fabrikanten.

Budde & Westerman, 50 Vesey st, N. Y.
Crooke John J. Co. 163 Mulberry & 38 Crosby st, N. Y.
Lehmaier, Schwartz & Co. 501 First av. N. Y.
Morganstein P. 70 Duane st, N. Y.
Schmaier Schwartz & Co. 493 1st av. N. Y.
Williams Chas. & Son, 85 Fulton st, N. Y.
Wittemann Brothers, 45 Murray st, N. Y.

Tin Plate Manufacturers.

F.
G.—Blech-Fabriken.

Phelps, Dodge & Co. 11 Cliff st, N. Y.

Tool Manufacturers.

F.—Outils (Fab. d').
G.—Werkzeug-Fabriken.

Goodnow & Wightman 176 Washington st, Boston, Mass.

Tube Expanders.

F.—
G.—Röhren-Auftreiber.

Dudgeon Richard, 24 Columbia st, N. Y.

Digitized by Google

Tube Makers—Brass & Copper.

F.—Tubes-Laiton et Cuivre.
G.—Röhren-Messing und Kupfer.

Benedict & Burnham Manufacturing Co. 13 Murray st, N. Y. Works, Waterbury, Conn.
Bridgeport Brass Co. 19 Murray st, N. Y.
FULLER SETH W. 22 Milk st, Boston, Mass.
Knapp John H. r 17 John st, N. Y.
Merchant & Co. Cliff c Beekman (525 Arch & 520 Cherry, Phila.)
Rousseau D. 4th av. nr 138th st, N. Y. Office 181 B'way, bet Courtland & Dey sts
Wallace & Sons, 89 Chambers & 71 Reade, N. Y.

Tubes—Seamless—Copper and Brass.

F.—Tubes—Laiton et Cuivre.
G.—Messing- und Kupferröhren ohne Naht.

American Tube Works, 78 John st, N. Y.
Bridgewater Iron Co. 73 Pearl st, N. Y., opposite Coenties slip. Nahum Stetson jr. agent
Donegan & Reilly, 229 West st, N. Y.
Wallace & Sons, 89 Chambers & 71 Reade st, N. Y.

Turners.

F.—
G.—Drcher.

Anton William, 11 Baxter st, N. Y.
Bab Elias, 18 Pell st, N. Y.
Becherer Joseph, 171 Suffolk st, N. Y.
Berthold Phillip, r 171 Suffolk st, N. Y.
Brutsche Solomon, 106 W. 37th st, N. Y.
Dayton John H. 429 W. 53rd st, N. Y.
Doran James, 514 First av, N. Y.
Dowers Chas. W. 186 W. Houston st, N. Y.
Duncalf John W. 560 W. 23rd st, N. Y.
Ehrherdt Fred. 182 W. Houston st, N. Y.
Frepp & Kempf, 175 Hester st, N. Y.
Gottweiss Alwin, 114 Prince st, N. Y.
Graham C. & Sons, 305 E. 43rd st, N. Y.
Greis Peter, 180 Centre st, N. Y.
Grote F. & Co., 114 E. 14th st, N. Y.
Heerdegen Ernest P. White n Elm st, N. Y.
Hill Richard, 182 Centre st, N. Y.
Hofmann Jacob, White c Centre st, N. Y.
Kalb Emil, 88 Clinton st, N. Y.
Kaldenberg F. Julius, 125 Fulton st, N. Y.
Kluppel Jacob C. 216 Centre st, N. Y.
Kraemer William, Courtland av. n 148th st, N. Y.
Kroder John, 11 Baxter st, N. Y.
Lindeman & Rieke, 147 Baxter st, N. Y
Lohse & Borger, 50 Ann st, N. Y.
Lovezzo John & Brother, 117 Prince st, N. Y.
Mackenzie George, ft. E. 125th st, N. Y.
Muller John T. 513 W. 30th st, N. Y.
Neu Joseph, 199 Wooster st, N. Y.
Remmey John F. r 92 Fulton st, N. Y.
Rothschild J. & Son, 6 Tompkins st, N. Y.
Schaefer John, 259 W. 27th st, N. Y.
Scheerer & Gress, 147 Baxter st, N. Y.
Schmid Charles, 256 W. 28th st, N. Y.
Schneider John, r 161 Attorney st, N. Y.
Schneider Philip, 189 Stanton st, N. Y.

Turners—*continued.*

Schon Samuel, r 171 Suffolk st, N. Y.
Shardlow Joseph, 116 Fulton st, N. Y.
Sinteff & Klumpp, 13 Baxter st, N. Y.
Soppan Godfried, 191 Stanton st, N. Y.
Struve Henry, 217 Centre st, N. Y.
Voltmer Matthias, 171 Suffolk st, N. Y.
Weiss Sigmund, 22 W. 3rd st, N. Y.
Welch Abram R. 258 W, 28th st, N. Y.
Wollersen Joseph, 147 E. 23rd st, N. Y
Zachgow August, 402 W. 48th st, N. Y.

Vulcanized India Rubber Manufacturers.

G.—Vulcanisirter Indiarubber.
F.—

New York Belting & Packing Co. 29 Park row, N. Y.

Wire Manufacturers.

F.—Fils (Fab. de).
G.—Draht-Fabriken.

Balderston H. & Son, 66, G. Calvert st. Baltimore, Md.
Barnum E. T. Detroit st, Mich.
Bassel V. 326 Manager st, Brooklyn, N. Y.
Benedict & Burnham Mfg. Co. 57 Oliver st, Boston, Mass.
Boughan James A. 24 Cliff st, N. Y.
Bogen E. E. Prospect & Nead av, Cleveland, Ohio
Bunnell J. H. & Co., 112 Liberty st, N. Y.
Bridgeport Brass Co. 19 Murray st. N. Y.
Brockner, Evans & Co., 422 West st, N. Y.
Bromhead G. Paterson st, N. J.
Brown & Bros. Waterbury, Conn.
Cabble William, Excelsior Wire Manufacturing Co. 43 Fulton st, N. Y.
Cala Wire Works Co. 6 Cala st, San Francisco, Cala.
Cary & Niven, 164 Lake st, Chicago, Ills.
Carey & Moen, 234 W. 29th st, N. Y.
Cleveland R. M. Co. 239 Franklin st, Boston, Mass.
Cleveland R. M. Co. 91 Lake st, Chicago, Ills.
Cleveland R. M. Co. 90 Water st, Cleveland, Ohio
Cleveland W. Works, 756 St. Clair st, Cleveland, Ohio
Cooper, Hewitt & Co. 17 Burling sl., N. Y.
Day A. G. 120 B'way, N. Y.
Davitt & Son, 1207 Dekalb av, Brooklyn, N. Y.
Dewitt Wire Mfg. Co. Belleville, N. J.
Dufor & Co. 34 N. Howard, Baltimore, Md.
Eagleton Mfg. Co. 163 Lake st, Chicago, Ills.
Eastwood Wire Mfg. Co. Belleville, N. J.
Electrical Supply Co. 109 Liberty st, N. Y.
Falls Wire Mfg. Co. Cuyahoga Falls, Ohio
Forman J. 127 Const st, Brooklyn, N. Y.
Forsey William S. 85 Beaver st, N. Y.
Gautier Steel Co. Limited, Johnstown, Pa.
Gilbert & Bennett Mfg. Co. 42 Cliff st, N. Y.
Globe R. M. Co. Cin. Ohio
Hamilton & Raimer, 1340 Vienna st, Phila. Pa.

Digitized by Google

Wire Manufacturers—*continued.*

Harrison Wire Co. 816 High st, St. Louis, Mo.
Hartby J. Waterbury, Conn.
Hartford Wire Works (Jonas & Colser), Hartford, Conn.
Hawksworth W. E. & Co. 31 Oliver st, Boston, Mass.
Hayden & Baker Columbus, Ohio
Hohlweck George, 219 Bowery st, N. Y.
Howard & Morse, 1197 Dekalb av, Brooklyn
Iowa Barb Wire Co. 99 John st, N. Y.
Jassand F. 453 Scoville av, Cleveland, Ohio
Jansen Jno. 497 Court st, Brooklyn, N. Y.
Kenton Wire Works, Covington, Ky.
Kidd E. & Co. Worcester, Mass.
King G. W. & Co. 482 N. 3rd ft, Phila, Pa.
Lamb H. Northampton, Mass.
Lamers & Bro. 461 St. Clair st, Cleveland, Ohio
Lay J. & Co. Olmsted Falls, Ohio
L. J. Wire & Iron Works, 349 Adams st, Brooklyn
Ludlow Taylor Wire Co. 219 Market st, St. Louis, Mo.
McMurray J. 102 N. 2nd st, Brooklyn, N. J.
McMurray John, 109 John st, N. Y.
Meyers F. G. Covington, Ky.
Moris J. H. Detroit, Mich.
Moore A. F. 200 N. 3rd st, Phila, Pa.
New Haven Wire Co. New Haven, Conn.
Norwood J. 349 Adams st, Brooklyn, N. Y.
N. Y. W. & W. R. Co. 855 Nulay st, Brooklyn
N. Y. Wire & Wire Rope Co. 21 Astor h, N. Y.
O'Neill J. 365 Ontario st, Cleveland, Ohio
Pearl & Elm, Cin. Ohio
Plant B. J. 43 Summer av, Brooklyn, N. Y.
Plume & Atwood Mfg. Co. 109 Luke st, Chicago, Ills.
Plume & Atwoood Mfg. Co. 13 Federal st, Boston, Mass.
Prentiss G. W. & Co. Holyoke, Mass.
RAYNOR H. M. 25 Bond st, N. Y. *See index to advertisers.*
Richardson Frederick G. 107 John st, N. Y.
Roebling's John A. Sons Co. Trenton, N. J. and 117 Liberty st, N. Y.
Schmitt P. 156 Graham av, Brooklyn, N. Y.
Schwirs J. H. 231 Lorimer st, Brooklyn, N. Y.
Scoville Mfg. Co. 183 Lake st, Chicago, Ills.
Smith Bros. 17 Henry st, Brooklyn, N. Y.
Southcomb & Bro. 7 N. Entand st, Baltimore, Md.
Spencer Wire Co. Spencer, Mass.
St. L. W. M. Co. Mercer & Papin, St. Louis
Staniar & Laffey, 53 Fulton st, N. Y.
Stewart & Co. So Eastern, Pa.
Stidman & Co. 16 N. Frederick st, Baltimore, Md.
Straats W. cor. Lorimer & Johnson sts, Brooklyn
Taylor W. & Co. 12 Bratenahl blk, Cleveland, Ohio
Tillotson G. L. & Co. 5 & 7 Dey st, N. Y.; factory 139, 141 & 143 Centre st
Townsend W. P. & Co. 19 Market st, Pittsburgh, Pa.
Trenton Iron Co. 17 Burling sl, N. Y.
Trenton Iron Co. 21 N. 4th st, Phila. Pa.
Wallace & Sons, 89 Chambers & 71 Reade st, N. Y.

Wire Manufacturers—*continued.*

Wallace & Son, Ansonia, Ct
Wheeler E. S. & Co. New Haven, Conn.
Widdham J. D. 74 N. Entaw st, Baltimore, Md.
Williams C. jr. 109 Court st, Boston, Mass.
Wilmington Wire Works, Wilmington, Dela.
Worcester Wire Co. Worcester, Mass.

Wire Manufacturers—Copper.

F.—Fils de Cuivre (Fab. de).
G.—Kupfer-Draht.

ANSONIA BRASS & COPPER Co. 19 & 21 Cliff st, N. Y. *See index to advertisers.*

Wire Manufacturers—Galvanized.

F.—Fils—galvanisé.
G.—Galvanisirter Draht.

Lefferts, Marshall & Co. 90 Beekman & 495 Cherry sts, N. Y.

Wire Manufacturers—Insulated.

F.—Fils-isolés.
G.—Isolirter Draht.

Electrical Supply Co. 109 Liberty st, N. Y.
Moore Alfred F. 200 & 202 N. 3rd st, Philadelphia, Pa.

Wire Screens.

F.—
G.—Drahtgeflechte.

Patent Metallic Weather Strip Co. 924 B'way near 21st st, N. Y.
Roebuck S. & Co. 164 Fulton st, N. Y.
Williams Charles & Son, 85 Fulton st, N. Y.
Wooley & Co. 63 Fulton st, N. Y.

Wire Workers.

F.—Fils (Façonneurs de).
G.—Verfertiger von Drahtarbeiten.

Baumann Francis, 15 Howard st, N. Y.
Bataille Achille, 122 W. B'way, N. Y.
Beere George, 408 W. 25th st, N. Y.
Besher John H. 18 New Church st, N. Y.
Buchholz Louis, 150 Centre st, N. Y.
Clarke John T. 172 W. B'way, N. Y.
Composite Iron Works Co. 53 Chambers st, N. Y.
Estey W. Shephard, 59 Fulton st, N. Y.
Felter & Co. 86 Walker st, N. Y.
Grottke Frederick W. 207 Bowery st, N. Y.
Heymann Solomon 119 av A, N. Y.
Hoffmann & Stader, 819 Third av, N. Y.
Hohlweck George, 219 Bowery & 167 Chrystie st, N. Y.
Hopkins N. Y. Steam Wire Works, 90 W. B'way, N. Y.
Hopkins & Co. 90 W. B'way, N. Y.
Horrocks Joshua, 45 Cliff st, N. Y.
Howard & Morse, 45 Fulton st, N. Y.

Digitized by Google

Wire Workers—*continued.*

Kleeman & Sheehan, 206 E. 29th st, N. Y.
Klotz Frederick & Co. 124 Prince st, N. Y.
McMurray Robert, 178 G'wich st, N. Y.
Mecke Herman, 888 Eighth av, N. Y.
Norris Wallace, 209 E. 22nd st, N. Y.
Oliver Arthur H. 81 Fulton st, N. Y.
Osmond William, 669 Third av, N. Y.
Palmenberg Joseph R. showrooms 466 & 468 Broome st; factory 54 Greene st, N. Y.
Rattery Emil, 48 W. 30th st, N. Y.
Reed & Keller, 120 W. 25th st, N. Y.
Rieth J. F. & Co., 259 Third av, N. Y.
Splitdorf Henry, 174 Worth st, N. Y.
Steffens Nicholas, 335 E. 21st st, N. Y.
Stephens James P. 176 Fulton st, N. Y.
Stetzer Liborius, r 134 Chrystie st, N. Y.
Stieffater George, r 257 W. 35th st, N. Y.
Sullivan John, 183 E. 124th st, N. Y.
Washburn Ulysses L. 878 Eighth av, N. Y.
Westervelt A. B. & W. T. 102 Chambers st, N. Y.
Williams Chas. & Son, 85 Fulton st, N. Y.
Williams George A. 85 Fulton st, N. Y.
Woods, Sherwood & Co. 176 Fulton st, N. Y.
Wooley & Co. 63 Fulton st, N. Y.

Wood Cuts—Dealers.

F.—
G.—

De Wett C. Lent, 30 Park pl, N. Y.
Redman & Kenny, 52 John st, N. Y.
Ringler F. A. cor. Barclay & Church sts, N.Y.
Shoppell R. W. 24 Beekman st, N. Y.

Wood Engravers.

F.—Graveurs sur bois.
G.—Holzbildhauer.

Arnold George W. 14 John st, N. Y.
Bellman Edwin, 96 Fulton st, N. Y.
Bookhout Brothers, 38 Maiden la, N. Y.
Boyle Michael O. 28 Cedar st, N. Y.
Butt Charles, 48 Beekman st, N. Y.
Brightly Joseph H. 52 John st, N. Y.
Bross Robert S. 14 Ann st, N. Y.
Cammeyer Dewitt C. 77 Nassau st, N. Y.
Chamberlin Benj. B. 34 Park row, N. Y.
Chubb Henry Y. 116 Nassau st, N. Y.
Cochen Jacob, 60 Chatham st, N. Y.
Cochen Noah L. 103 Beekmam st, N. Y.
Connelly & Co. 192 B'way, N. Y.
Cox Stephen J. Co. Limited, 90 Nassau st, N. Y.
Cox Cornelius L. 34 Park row, N. Y.
Cuzner Albin T. 48 Beekman st, N. Y.
Davis John P. 52 John st, N. Y.
Davis Samuel P. 52 John st, N. Y.
Demarest Abraham jr. 179 B'way, N. Y.
Donaldson Theodore P. 34 Park row, N. Y.
Dryden J. C. 92 Fulton st, N. Y.
Drydon James C. 119 Nassau st, N. Y.
Edmonds Charles, 80 Nassau st, N. Y.
Filmer John, 318 B'way, N. Y.

Wood Engravers—*continued.*

Fischer & Roscoe, 177 William st, N. Y.
Forrest Charles B. 63 Fulton st, N. Y.
Foy James S. 191 B'way, N. Y.
French Frank, 76 Chambers st, N. Y.
Fuller Sarah E. 25 Bond st, N. Y.
Geyer Ferdinand, 317 B'way, N. Y.
Gilmour Hazlett, 7 Murray st, N. Y.
Hallett James H. 47 Barclay st, N. Y.
Halsey John L. 7 Murray st, N. Y.
Harley Joseph S. 160 Fulton st, N. Y.
Hayman Arthur 317 B'way, N. Y.
Heinemann Ernst, 46 Seventh st, N. Y.
Holt, Thomas E. 114 Nassau, st, N. Y.
Jenkinson James W. 34 Park row, N. Y.
Johnson Brothers & Co. 35 Ann st, N. Y.
Johnson Lytle W. 96 Fulton st, N. Y.
Juengling Fred. & Co. 220 E. 48th st, N. Y
Karst John, 300 Canal st, N. Y.
Knell George, 34 Park row, N. Y.
Koevoets H. & C. 183 B'way, N. Y.
Langridge James L. 22 Duane st, N. Y.
Littell William D. 96 Chambers st, N. Y.
Loewenthal Gustavus C. 39 Ann st, N. Y.
Lusk William, 7 Murray st, N. Y.
Meeder Philip, 21 Beekman st, N. Y.
Metcalfe Jasper, 254 B'way, N. Y.
Mix Lucius C. 100 Nassau st, N. Y.
Moss Engraving Co. 535 Pearl st, N. Y.
Mott Barton H. 169 William st, N. Y.
Murray Charles, 58 Ann st, N. Y.
Neville Edgar, 14 Ann st. N. Y.
Nichols David, 191 B'way, N. Y.
Orr Nathaniel, 52 John st, N. Y.
Petri & Pels, 22 N. William st, N. Y.
Pesoa Isaac G. 96 Fulton st, N. Y.
Photo. Engraving Co. 67 Park pl, N. Y.
Powell Caroline A. 31 W. 35th st, N. Y.
Priest Charles P. 14 John st, N. Y.
REDMAN & KENNY, 52 John st, N. Y. Electrotypes of all Exposition, and fair medals for sale
Reynolds Francis M. 192 B'way, N. Y.
Richardson James H. 58 Ann st, N. Y.
Richardson William H. 58 Ann st, N. Y.
Roberts William, 36 Beekman st, N. Y.
Roylance Mark & Co. 88 Centre st, N. Y.
Ruestow & Dryden, 10 Spruce st, N. Y.
Schinck Julius, 92 Fulton st, N. Y.
Sears Edward, 48 Beekman st, N. Y.
Senior Henry, 77 Nassau st, N. Y.
Shoppell's Press Engraving Co. 24 Beekman st, N. Y.
Shopphell Robert W. 60 Bible h. st, N. Y.
Shugg Brothers, 18 Cortlandt st, N. Y.
Smart Thomas L. 96 Fulton st, N. Y.
Soltmann Emil, 143d n Third av. N. Y.
Spiegle Charles, 318 B'way, N. Y.
Stayert Julius, 92 Fulton st, N. Y.
Strong & Brinsley, 113 Fulton st, N. Y.
Sullivan Jeremiah F. 111 Nassau st, N. Y.
Teneyck Richard, 69 Nassau st, N. Y.
Traver & McCully, 287 B'way, N. Y.
Treadwell William W. 229 B'way, N. Y.

Digitized by Google

Wood Engravers—*continued.*

Trent Joseph, 63 Fulton st, N. Y.
Tuttle David H. 21 Beekman st, N. Y.
Vogt Brothers, 194 William st, N. Y.
Vonderluhe Theodore, 77 Nassau st, N. Y.
Wardell Charles J. 160 Fulton st, N. Y.
Waters John W. 51 Fulton st, N. Y.
Weber Christian, 21 Beekman st, N. Y.
Weed Edwin A. 303 E. 36th st, N. Y.
White Hugh R. 36 Beekman st, N. Y.
Wilson James & Son, 54 E. 13th st, N. Y.
Winham Edward A. 58 Ann st, N. Y.
Wright Chauncey, 77 Nassau st, N. Y.

Zinc Manufacturers.

F.—Zinc (Fab. de).
G.—Zink-Fabrikanten.

Bergen Port Zinc Co. 13 Burling sl, N. Y.
Bergenpt Zinc Wks. Bayonne, N. J.
Boston Lead Mfg. Co. 26 Oliver st, Boston, Mass.
Crocker Bros. & Son, 11 Broad st, Boston, Mass.
Eagle Zinc Wks. Hatmaker, Cincinnati, Ohio
Edes O. Hart L. & Co. Plymouth, Mass.
Hirt Henry, 279 Av. B, N. Y.
Illinois Zinc Co. Peru, Ills.
Kinsman, Gundy & Perry, La Salle, Ills.
Kinsman Zinc Co. La Salle, Ills.
Kremer J. 25 Jesse st, San Francisco
Lehigh Zinc & Iron Co. Limited, 13 Platt st, N.Y.
Lehigh Zinc Co. 333 Walnut st, Phila. Pa.

Zinc Manufacturers—*continued.*

Lehigh Co. Bethlehem, Pa.
Lund A. G. 98 N. Wells st, Chicago, Ills.
McDonagh William & Co. 180 Fron st, N. Y.
Manning & Squier, 113 Liberty st, N. Y.
Mathicosen & Hegeler, La Salle, Ills.
Mercer Zinc Wks. Trenton, N. J.
Meyerscieck M. & Co. Hatmaker, Cincinnati, O.
Missouri Zinc Co. J. M. R. R.. Op. Primm Valley Mining Co. Randolph & Water sts, St. Louis, Mo.
N. J. Zinc Co. Fort Richards, N. J.
N. J. Zinc & Iron Co. 61 Maiden la, N. Y.
Osgood F. & Co. 13 Burling sl, N. Y.
Pacific Zinc Ore Factory, 569 Mission st, San Francisco
Passaic Zinc Co. J. City, N. J.
Passaic Zinc Co. 113 Liberty st, N. Y.
Schweizer J. 54 Metro ave, Brooklyn, N. Y.
Seelig M. J. & Co. 115 Manger st, Brooklyn
Stole J. A. 588 Grand st, Brooklyn
Warren Bros., 47 W. Lake, Chicago, Ills.
Wellenberg Henry, 7 Thompson st, N. Y.
Wilhelm A. & Co. 221 Poplar st, Reading, Pa.
Wood N. & Co. Plymouth, Mass.

Zinc Rod Manufacturers.

F.—
G.—Verfertiger von Zinkstäben.

Ansonia Brass & Copper Co. 19 & 21 Cliff st, N. Y.

Digitized by Google

AMERICAN

ALPHABETICAL SECTION.

A.

Abbott & Co. electrotypers, 12 Barclay st. New York.
Abbott Jeremiah & Co. importers of steel, 23 Cliff st. New York.
Abecasis J. S. & Son, india rubber brokers, 41 Beaver st. New York.
Abel Michael, pattern maker, 508 W. 24th st. New York.
Abendroth & Root Mfg. Co. anti-fouling boiler makers, 28 Cliff st. New York.
Abernethy J. P. electrician, Supt. Tel. Cleveland, Ohio.
Ackerman J. H. & Co. metal dealers, 249 Pearl st. New York.
Adam John F. railroad supplies, 55 Pine st. New York.
Adams & Carter, mechanical engineers, 109 California st. San Francisco, Cal.
Adams Nickle Pltg. & Mfg. Co. general platers, S. Windham, Ct.
Adams Jos. H. patent solicitor, 33 School st. Boston, Mass.
Adcock, patent solicitor, 69 Honore Bldg. Chicago, Ills.
Adelmann John, optician, 130 Fulton st. New York.
Agnew T. J. electrician, Philadelphia, Pa.
Ahern Dennis, anti-fouling boiler maker, 279 Cherry st. New York.
Ahlstrom Oscar G. electrical instrument manufacturer, 162 William st. New York.
Ahlstrones O. G. telegraph supplies, 162 William st. New York.
Aiken & Woodard, charcoal makers and dealers, Cambridge st. Mass.
Airey A. L. electrician, Cleveland, Ohio.
Albany Electric Illuminating Company, 71 Trinity pl. Albany, New York.
Albany N. P. Co. general platers, corner Pearl and Pleasant sts. St. Louis, Mo.
Albany, Troy & Sand Lake, telegraph company, 120 Broadway, New York.
Albertson D. T. railroad supplies, 95 liberty st. New York.
Albrecht Henry, mathematical instrument maker, 62 Fulton st. New York.
Albro H. Jesse & Kane, general platers, Springfield, Mass.
Alburtis Clement W. metal dealer, 95, Liberty st. New York.
Alden G. A. & Co. dealers in (crude) rubber, 167, Congress st. Boston, Mass.
Aldrich M. screw manufacturer, Lowell, Mass.
Alexander C. M. patent solicitor, 709 G st. Washington, D. C.
Alexander Joh, metal dealer, 59, Beekman st. New York.
Alexander T. A. patent solicitor, 607 7th st. Washington, D. C.
Allegheny County Light Company, 11 13 & 15 Virgin al. between Wood and Liberty sts, Pittsburgh, Pa.
Allen Paper Car Wheel Co. railroad supplies, 240 Broadway, New York.
Allen C. A. general plater, 182 State st. Chicago, Ills.
Allen D. C. patent solicitor, 511 F st. Washington, D. C.
Allen Henry, glass manufacturer, 131 William st. New York.
Allen H. A. steam engine maker, 115 Broadway, New York.
Allen L. M. electrician, Duxbury, Mass.
Allen W. patent solicitor, 632 F st. Washington, D. C.
Aller A. anti-fouling boiler maker, 109 Liberty st. New York.
Allisohn Joseph J. & Son, anti-fouling boiler maker, 46 Jef. st. New York.
Allison & Smith, electrotypers, 168 Vine st. Cincinnati, Ohio.
Allison W. C. iron pipe manufacturer, 78 John st. New York.
Allison Wm. C. electrician, Philadelphia Pa.
Allt Edmund, brass founder, 2 Hague st. New York.
Almquist August W. patent solicitor, 13 Park row, New York.
Almy H. S. & Co. electrolier and chandelier manufacturers, 42 Park pl. New York.

Digitized by Google

Alt Charles, optician, White c Elm st. New York.
Alwood W. J. & Co. general platers, Amesbury, Mass.
American Atlantic Cable Telegraph Co. 66 Broadway, New York.
American Automatic Telegraph Co. 52 Broadway, New York.
AMERICAN BELL TELEPHONE CO., 95 Milk st. Boston, Massachusetts.
American Carbon Co., St. Louis, Mo.
American Cont. & Msc. Hall Telegraph Co. 95 Milk st, Boston, Mass.
American District Tel. Co. 52 S. Fifth avenue, 239, 407, 575, 791, 946, 1227 & 1369 B'way, New York.
American Electric Co. electricians, 58 New Church st. New York.
American Electric Co. electrical instrument manufacturers, 31 & 30, Chestnut st. Phlla., Pa.
American Electric Co. electrical supplies, New Britain, Conn.
American E. L. Co. 540 W. 16th st. New York.
American Electric Light Co. New Britain, Conn.
American Electric Storage Co. Executive Office, 792, Broad st., Newark, New Jersey.
American Fastening Co. screw manufacturers, 43 Milk st. Boston, Mass.
American Iridium Co. S.E. cor. of Pearl and Plum sts. Cincinnati, O.
American Magneto-Electric Light Co. telegraph supplies, 39, Broadway, New York.
American Mfg. Co. railroad supplies, 176, Broadway, New York.
American Metalline Co. 204 Greene st. New York.
American Mica Mining Co. mica merchants, Worcester, Mass.
American Nickle Works, general platers, Camden, New Jersey.
AMERICAN PHOTO-LITHOGRAPHIC CO. Evening Post building, Room F. cor. Broadway & Fulton st. New York.
American Plating Co. general platers, 302 Washington st, Boston.
American Progress, D. J. Tapley, publisher, 13 and 15, Park row, N.Y.
American Progress, Globe Patent Agency, 34 Park row, New York.
American Railroad Switch Plate Co., Limited, railroad supplies, 21 Cortlandt st. New York.
American Railway Signal Co. railway signal manufacturers, 30 Broad st. room 21, New York.
American Rapid Telegraph Co. 171, 207, 409 & 940, Broadway, New York.
American Screw Co. Providence, Rhode Island.
American Speaking Telephone Co., 195 Broadway, New York.
American Speaking Telephone Co. East Tenes.
American Telegraph & Cable Co. 6 Broad st. New York.
American Tube & Iron Co. iron pipe manufacturers, 28, School st, Boston, Bass.
American Tube & Iron Co. iron pipe manufacturers, Middletown, Pa.
American Tube & Iron Co. iron pipe manufacturers, 98, John st. New York.
American Tube Works, copper and brass seamless tubes, 78 John st. New York.
American Type Foundry, electrotypers, 510 Clay st. Phila. Pa.
American Union Telegrah Co. 31 State st. Boston, Mass.
American Union Telegraph Co. 135 Broadway, New York.
Ames Daniel T. designer and draughtsman, 205 Broadway, New York.
Ames Engines and Boilers, steam engine makers, 18 S. Canal st. Chicago.
Amet E. H. electrician, La Grange, Ills.
Anderson B. C. & Co. metal dealers, 87 Pike st. New York.
Anderson & Boytson, brass founders, 259 Randolph st. Chicago.
Anderson E. W. & Co. patent solicitor, 700 7th st. Washington, D.C.
Anderson A. T., general plater, 38 Washington st. Chicago, Ills.
Anderson John, designer and draughtsman, 767 Broadway, New York.
Anderton R. L. nickel plater, 210 Grand st. New York.
Adran A. patent solicitor, 61 State st. Boston, Mass.
Andrews John & Co. felt makers, 23 Dey st. New York.
Andrews C. N. electrician, San Francisco, Cal.
Androus George L. designer and draughtsman, 353 Sixth avenue, New York.
Angell Water Wheel Co. mechanical engineers, Calendar, Providence, Rhode Island.
Anhauser William, 36 Dey st. New York.
Annie & Co. iron pipe manufacturers, 30 Adam st., Brooklyn, New York.
Anson E. M. electrician, 195 Broadway, New York.
ANSONIA BRASS & COPPER CO. manufacturers of zinc rods, magnets, electrical instruments, telephone apparatus, also covered and copper wire, &c. 19 and 21 Cliff st. New York.
Anthony H. M. chemical manufacturer, 100 Reade st. New York.
Anton William, turner, 11, Baxter st. New York.
Applegate's Electric Floor Mat Alarm Manufacturing Company, 95 Chambers st. New York.
Appleton D. & Co. scientific booksellers, 1, 3 & 5 Bond st. New York.
April Israel, felt maker, 17 Clinton st. New York.
Archer & Pancoast Manufacturing Co. electric light fixture makers, 70 Wooster and 67 Greene sts. N.Y.

Digitized by Google

Archer, Panivast & Co. electric light fittings manufacturers and fitters, Green st, N. Y.
Archer Thomas, glass cutter, 211 E. 22nd st. New York
Archibald L. B., Superintendent Government Railway, electrician, Charlottetown, P. E. J.
Arnois & Lecour, manufacturing chemists, 547 W. 18th st. New York.
Arnold A. S. & Co. electric light fixture makers, 1293 Broadway, New York.
Arnold A. K., mechanical engineer, 21 Nassau st. Newark, New Jersey.
Arnold George W. wood engraver, 14 John st. New York.
Arnold J. G. electrician, Worcester, Mass.
Arnoux & Hochhausen Electric Company, dynamo and magneto electric machine manufacturers, 221, 217 East 20th st. New York.
Arrondo Senor Don Bernarda de Director of Telegraphs, Hayana, Cuba.
Arthur B. F. & Co., manufacturing chemists, 84, Front st. New York.
Asbestos Felting Works, boiler and pipe coverings manufacturers, 108 Liberty st. New York.
Asbestos Packing Company, asbestos, & asbestos materials manufacturers, 169 Congress st. Boston, Mass.
Asbestos Patent Fibre Company, 369 W. 11th st. New York.
Ashcroft Manufacturing Company, steam gauge manufacturers, Salesroom, 111 Liberty st.; Factory, Boston and Lynn sts. New York.
Ashcroft John, Manufacturing Company, railroad supplies, 40 John st. New York.
Ashley Charles C. optician, 3 Vesey st. New York.
Asphalted Wrought Iron Pipe Company, 550 E. 117th st. New York.
Aspinall Edwin, bone dealers, 206 Pearl st. New York.
Atlantic Giant Powder Company, 59, Park pl. New York.
Atlantic Glass Company, 95 Water st. Pittsburgh, Pa.
Atlantic and Pacific Electric Light Manufacturing Company, Camden, New Jersey.
Atlantic and Pacific Telegraph Company, 68 Chauncey st. Boston, Mass.
Atlantic Screw Company, Hartford, Conn.
Atlas Iron Works, steam engine makers, 135, Beall st. San Francisco.
Atterbury J. R. electrician, Pittsburg, Pa.
Atwood Railway Wheel Company, railway supplies, 57 Astor H. New York.
Atwood & Wentworth, general platers, Portland, Me.
Atwood J. M. map and chart engravers, 410 Walnut st. Phila. Pa.
Aubrey & Reiser, glass manufacturers, 191 Worth st. New York.
Aultman C. & Company, steam engine makers, 126 Main st. Cincinnati, Ohio.
Automatic Fire Alarm Company, 52 Kirby st. Boston, Mass.
Automatic Gas Lamp and Lighting Company, electrolier and chandelier manufacturers, 59 Ceder st. New York.
Automatic Signal Telegraph Company, electric alarm manufacturers, 294 Broadway, New York.
Automatic Signal Telegraph Company, 283, Franklin st. Boston, Mass.
Avery Thomas C. coppersmith, 231 South st. New York.
Ayres A. W. general plater, Northampton, Mass.

B

Baader & Weber, electricians, 242 Broom st. N. Y.
Bab, Elias, turner, 18 Pell st. N. Y.
Babcock & Wilcox, mechanical engineers, 30 Cortlandt st. N. Y.
Babcock W. H. patent solicitor, 513 Seventh st. Washington, D. C.
Bachrack Bros. manufacturers of india rubber goods, 73 Teneyck st. Brooklyn, N. Y.
Backus J. asbestos and asbestos materials manufacturer, 446 Cherry st. Philadelphia.
Badeau Charles R. & Son, metal sashes, 211 Grand st. N. Y.
Badun J. pottery (for porous cups), cor. Brush & Smith sts. Brooklyn, N. Y.
Baeder, Adamson & Co. emery and crocus manufacturers, 67 Beekman st. N. Y.
Baerenklau Gustav A. coppersmith, 172 Forsyth st. N. Y.
Baetz William, chemical apparatus, 96 Fulton st. N. Y.
Bagger L. & Co. patent solicitors, 802 F st. Washington, D. C.
Bahr & Zahn, electrical supplies, 108 Liberty st. N. Y.
Bail Clinton M. electrical supplies, Troy st, N. Y.
Bailey, Eachus & Shoe, nickel platers, 428 Walnut st. Philadelphia Pa.
Bailey Theo. P. electrical supplies, 203 Van Breren st. Chicago, Ills.
Bailey William H. brass and copper manufacturer, 76 John st. New York.
Bain Forée, electrician, 721 Hennepin avenue, Minneapolis, Minn.
Baker Brass Co. brass and copper manufacturers, 11 Light st. New York.
Baker G. E. electrician, 195 Broadway, N. Y.

Digitized by Google

Baker, G. T. general plater, 327 Main st, Buffalo, N. Y.
Baker H. J. & Bro. plumbago merchants, 215, Pearl st. N. Y.
Baker O. P. lightning rod manufacturer, 48 St. John's pl., Chicago, Ills.
Bakewell & Kerr, patent solicitors, 10 Diamond st. Pittsburgh, Pa.
Balderston H. & Son, wire manufacturers, 66 G. Calvert st. Baltimore, Md.
Baldwin A. A. electrician, Ionia, Mic.
Baldwin, Hopkins & Payton, patent solicitors, 25 Grant place, Washington, D. C.
Baldwin & Wiley, copper scroll lightning rod manufacturers, Omaha, Nebraska.
Baldwin Bradley H. writing ink makers, 307 Broadway, N.Y.
Ball C. M. electrician, Troy.
Ballard Stephen & Co. leather belting manufacturers, 26 First st. E. D. Brooklyn.
Balmain, George, manufacturers of printing ink for telegraphs, 76 William st. N. Y.
Baltimore & Ohio Telegraph Co. 63 & 315 Broadway & 106 Wall st. N. Y.
Baltimore & Waverly Telegraph Co, 49, N. Holliday st. Baltimore. Mass.
Balzer Nicholas, bone dealer, 113, Willett st, N. Y.
Band F. brass founder, 522, Fulton st. San Francisco.
Bandeis L. & Son, lead pipe manufacturers, 46 Fulton st. Brooklyn
Banker George W. glass manufacturer, 41 Platt st. N. Y.
Bankers' Telegraph Co. main office 26 Broad st. N. Y.
Banks W. H. electrical lighting apparatus and supplies, 203 Van Buren st. Chicago, Ills.
Banning & Banning, patent & design registration agents, 21 Park row, N. Y. & Honor bldgs. Chicago.
Banta W. E. electrician, Springfield, Ohio.
Barbour Aden E., mineralogist, 102 William st. N. Y.
Barbour C. S. general plater, New Haven, Conn.
Barker & Beeston, mechanical engineers. opp. Fifth st. pass. R. R. Depôt, 2509 Knorr st. Philadelphia.
Barker, Joseph S. electric light fixture maker, 168 Centre st. N. Y.
Barnes A. G. copper scroll lightning rod manufacturer, Lincoln, Nebraska.
Barnes R. F. designer and draughtsman, 120 Broadway, N. Y.
Barnum E. T. wire manufacturer, Detroit st. Michigan.
Barr Edward, railroad supplies, 78 John st. New York.
Barren Warren C. charcoal maker and dealer, 245 W. Ninteenth st. New York.
Barrett Joseph, designer and draughtsman, 17, Warren st. New York.
Barritt Franklin, patent agent, 4 College pl. New York.
Barrow O. L. electrician, 107 State st. Boston.
Barrows & Co. railroad supplies, 64 Broadway, New York.
Barry John, mathematical instrument maker, 62 Fulton st. New York.
Barry William M. mineralogist, 141 Eighth st. New York.
Barstow E. W. & Son, metal dealers, 83 Maiden la. New York.
Bartlett Lamp Mfg. Co. street lamp manufacturers, 35 Howard st. New York.
Bartlett Edward E. designer and draughtsman, 34 Park row, New York.
Bartlett F. C. electrician, 336 W. Fifty-sixth st., New York.
Bartow Henry T. chemical manufacturer, 174 Pearl st. New York.
Bassal V. wire manufacturer, 326, Manager st. Brooklyn, New York.
Bassemir John, metal spinner, 41 Centre st. New York.
Bataille Achille wire worker, 122 W. Broadway, New York.
Bataille F. gold and silver plater, 142, Berger st. Newark, New Jersey.
Batchelor E. S. electrician, Pittsburg, Pa.
Bates D. H. electrician, 195 Broadway, New York.
Bates Wm. patent solicitor, 27½ W. Third st. Cincinnati, Ohio.
Battelle & Renwick, sulphur refiners, 163 Front st. New York.
Batten & Downing, glass cutters, 209 Hudson street, New York.
Battershall Jesse P. analytical chemist, 3 E. Fourteenth st. New York.
Bauer Herman, optician, r 17 John st. New York.
Baumgarten L. & Co. nickel platers, 141 Elm st. New York.
Baumann Francis, wire worker, 15 Howard st. New York.
Bausch & Lomb Optical Co. opticians, 37 Maiden la. New York.
Baxter Steam Engine Co. steam engine makers, 118 Liberty st. New York.
Bay State Glass Co. glass manufacturers, E. Cambridge, Boston, Mass.
Bay State Nickel Plating Works, nickel platers, 77 Travers st. Boston.
Bay State Plating Works, gold and plain platers, 28 Beach st. Boston.
Beyer, Adolph, mathematical instrument maker, 63 Fulton st. New York.
Bayley G. D. silver plater, 217 Adams st. Brooklyn, New York.
Baystate Mining Co. mica merchants, 142 Kneeland st. Boston.
Beadle & Courtney, railroad supplies, 1193 Broadway, N. Y.
Beadle H. W. & Co. patent solicitors, 437 7th st, Washington. D. C.

Digitized by Google

Beard Daniel C. designer and draughtsman, 191 Broadway, N. Y.
Beard Frank, designer and draughtsman, 191 Broadway, N. Y.
Beard Harry, designer and draughtsman, 191 Broadway, N. Y.
Beard James C. designer and draughtsman, 191 Broadway, N. Y.
Beardoley D. N. & Co. railroad suppliers, 9 Murray st, N. Y.
Beardslee, G. W. electrician, 314 Green avenue, Brooklyn.
Becherer Joseph, turner, 171 Suffolk st. N. Y.
Bechtold Adolph, optician, 92 Chatham st. N. Y.
Beck, Albin, mathematical instrument maker, 50 Fulton st. New York.
Beecher, L. electrician, Medina, N. Y.
Been F. H. electrician, Newark, N. J.
Beere George, wire worker, 408 W. 25th st., N. Y.
Beers & Co. 163 W. 29th st. N. Y.
Beeson W. electrician, Miles City, Montana.
Begg James & Co. railroad supplies, 9 Dey st. N. Y.
Beggs E. J. & Co. manufacturing chemists, 143 Maiden la. N. Y.
Belcher & Bagnall, steam engine makers, 40 Cortlandt st. N. Y.
Belcher John H. steel manufacturer, 44 Astor h. N. Y.
Bell Teleph. Co. 4th & Chestnut sts. Philadelphia, Pa.
Bell Teleph. Co. 417 Olive st. St. Louis.
Bell Alexander Graham, electrical supplies, Washington st. D. C.
Bell Graham, electric light engineer, 95 Milk st. Boston, Mass.
Bell J. S. patent solicitor, 913 Walnut st. Philadelphia, Pa.
Bell V. electrician, Minneapolis, Minn.
Bellman, Edwin, wood engraver, 96, Fulton st. N. Y.
Benedict and Burnham Manufacturing Company, brass and copper manufacturers, 13 Murray st. N. Y.
Benedict and Burnham Manufacturing Company, wire manufacturers, 57, Oliver st. Boston, Mass.
Benjamin, Fischer & Mulberry, mechanical engineers, 224 S. Jefferson st. Chicago, Ills.
Benjamin, Park & George H. mechnical engineers, 235 Broadway, N. Y.
Benjamin E. B. chemical apparatus manufacturer, 6 Barclay & 12 Vesey st. N. Y.
Benjamin J. B. electrician, N. Y.
Benjamin Marcus, analytical chemist, 6 Barclay st. N. Y.
Bennem William L. patent agent, 19 Park pl. N. Y.
Bennethum & Co. opticians, 21 Ann st. N. Y.
Bennett J. pottery (for porous cups), 412 E. 24th st. N. Y.
Benney John & Son, manufacturers of street lamps, 344, Atlantic avenue, Boston, Mass.
Bentley Henry Philadelphia Telegraph Co. Phila. Pa.
Benton, Faulkner & Bird, iron pipe manufacturers, 35 Dey st. N. Y.
Berendsohn Siegmund, electrolier and chandelier manufacturer, 86 Fulton st. N. Y.
Berge J. & H. magnetic curative appliance manufacturers, 95 Fulton & 191 Greenwich st. N. Y.
Bergen Port Zinc Co. zinc manufacturers, 13 Burling sl. N. Y.
Bergenpt Zinc Works, zinc manufacturers, Bayonne, N. J.
Berger Albert & Co., opticians, 47 Maiden la. N. Y.
Bergman & Co. electric light company, 17th st. and B avenue, 8th st. and C avenue, N. Y.
Bergmann & Co. electrical instrument manufacturers, 108, Wooster st. N. Y.
Beringer W. C. & Co. patent solicitors, 106 4th avenue, Pittsburg, Pa.
Berliner J. electrician, Boston, Mass.
BERLY'S BRITISH, AMERICAN AND CONTINENTAL ELECTRICAL DIRECTORY AND ADVERTISER (G. Cumming, sole agent) 219 E. 18th st. N. Y.
Bernstein A. electrician, N. Y.
Berry Wm. B. & Co. model makers, 79, North st. Boston, Mass.
Berthold Philip, turner, r 171, Suffolk st. N. Y.
Berwin G. H. maker of magnetic clothing, 457 Fulton st., Brooklyn, N. Y.
Besher John H. wire worker, 18 New Church st., New York.
Betts W. electrician, Cable Français, St. Pierrè et Miquelou.
Bickley Charles G., silver-plate ware manufacturer, 22nd W. 3rd st. N. Y.
Biddle & Voohees, drug manufacturers, 36 Platt and 147 Mulberry st. N. Y.
Bieg, H., potteries (for porous cups), 361 Flushing avenue, Brooklyn, N. Y.
Bienz & Son, designers and draughtsmen, 71 Third avenue, N. Y
Bildersee Barnett, electrolier and chandelier manufacturer, 40 Murray st. N. Y.
Billings, Clapp & Co. manufacturing chemists, 20 Liberty st. N. Y.
Binney & Smith, charcoal makers and dealers, 55 Ferry st. N. Y.
Binns Joseph & Brother, manufacturing chemists, 183 Pearl st. N. Y.
Birch W. H. mechanical engineer, 119 Beale st. San Francisco, Cal.
Birmingham Patrick, optician, 142 Fulton st. N. Y.

Digitized by Google

Bishop, Gutta Percha Wks. gutta percha manufacturers, 420, 422, 424 and 426 E. 25th st. New York W. W. Marks, supt.
Bishop & Deetjeen, coppersmiths, 210 South st. N. Y.
Blackman Ebenezer, electrolier and chandelier manufacturer, 93 Maiden la. N. Y.
Blade Pts. & Paper Co. electrotypers, Toledo, Ohio.
Blaesius Emile V. brass finisher, 109 Wooster st. N. Y.
Blake Wm. & Co. copper manufacturers, cor. Brighton & Allen sts. Boston, Mass.
Blackslee E. G. & Co. iron pipe manufacturers, 80 Centre st. N. Y.
Blanchard Light & Power Co. cor. Quay & West sts. Brooklyn. N. Y.
Blanchard W. & R. H. Morris, mechanical engineers, 195 B'way, N. Y.
Blany C. W. jr. electrotyper, 8 N. Anderson st. Boston, Mass.
Bless G, H. electrician, Pittsfield, Mass.
Blewitt James, railroad supplies, 332 Seventh avenue, N. Y.
Bliss John & Co. chronometer makers, 128 Front st. N. Y.
Bliss R. Manufacturing Co. screw manufacturers, Pawtuckit, R. I,
Bloede & Rathbone, manufacturing chemists, 12 Cedar st. N. Y.
Blomgren Bros. & Co. electrotypers, 164, Clark st. Chicago.
Board of Trade Telegraph Co. 6, exchange pl. Chicago, Ills.
Board of Trade Telegraph Co. 22 W. 4th st. Cincinnati, Ohio.
Board of Trade Telegraph Co. La Salle st. Chicago.
Board of Trade Telegraph Co. 137 Whitehall st. N. Y.
Bocking Carl, manufacturing chemist, 34 City Hall pl. N. Y.
Boeder Adamson & Co. felt makers, 67 Beekman st. N. Y.
Boettcher J. G. brass founder, 132 1st st. E. D. Brooklyn.
Bogart Abraham L. burglar and fire alarm maker, for improved combinations excelling the "Origina Burglar Alarm," guaranteeing perfect security, address A. L. Bogart, 22 Union-square, Fourth avenue side, N. Y.
Bogen E. E. wire manufacturer, Prospect & Nead avenue, Cleveland, Ohio.
Bohrmann August W. metal spinner, 46, Centre st. N. Y.
Bond, Parsons & Co. metal dealers, 104 John st. N. Y.
Bonner & Vancourt, iron pipe manufacturers, 242 Canal & 517 W. 45th st. N. Y.
Bonniol Adolph, designer and draughtsman, 83 Nassau st. N. Y.
Bonville Charles E. H. designer and draughtsman, 7 Murray st. N. Y.
Bonwill Wm. G. A. electrical supplies, 1719 Locust st. Philadelphia.
Bookhout Brothers, wood engravers, 38, Maiden la. N. Y.
Book Nickel Pl. Co. 15 Bowker st. Boston.
Boot Pltg. Co. gold and plain platers, 90 Sudbury st. Boston, Mass.
Booth C. W. brass founder, 13, Adams st. Brooklyn.
Booth Samuel, anti-fouling boiler maker, 545 W. 35th st. N. Y.
Borchert Charles, optician, 297½ Broadway, New York.
Borden T. electrician, Fall River, Mass.
Bordwell & Rogers, mechanical engineers, San Francisco, Cal.
Bornstein Morris, metal dealer, 15 Ann st. New York.
Bosch Bros. electrical instrument makers, 29 Mechanic st. Newark, New Jersey.
Boss, A. pottery for porous cups, 136 & Third avenue, New York.
Bossard August, electrician, 7 Frankfort st. New York.
Boston Belting Co. rubber belting and rubber manufacturers, 226 Devonshire st. Boston, Mass. & 112 Duane st. New York.
Boston Blue Vitrol Works, sulphate of copper merchants, 167 mr. Washington avenue, Boston, Mass.
Boston Brass Co. brass founders, Boston, Mass.
BOSTON ELECTRIC CO. electrical supplies, 550 Washington st. Boston, Mass.
Boston Electric Co. electrotypers, 22 Pearl st. Boston, Mass.
Boston Electric Protective Association, telegraph company, 56 Summer st, Boston Mass.
Boston J. F. & Brother, designers and draughtsmen, 261, Broadway, New York.
Boston Lead Manufacturing Co. zinc manufacturers, 26 Oliver st. Boston, Mass.
Boston Photographic Engraving Co. 11 Cornhill, Boston, Mass.
BOSTON & SANDWICH GLASS CO. glass shade makers and dealers, 17 Murray st. New York.
Boston Type Foundry, electrotypers, 104 Milk st. Boston, Mass.
Botsford & Lacy, electrolier and chandelier manufacturers, 52 Park pl. New York.
Bougham James A. wire manufacturer, 24, Cliff st. New York.
Boulter Arthur optician, 79 John st. New York.
Boulter James steam engine maker, 79 John st. New York.
Boulton Carbon Co. Cleveland O.
Bourbon Copper & Brass Works, brass founders, 196 E Front st. Cincinnati, Ohio
Bourgon J. charcoal maker and dealer, 317, Walnut st. Buffalo, New York.

Digitized by Google

Bourgougnon Alex. analytical chemist, 26 W. 4th st. New York.
Boutwell F. M. patent solicitor, 54, Equitable bldg. Boston, Mass.
Bowen Francis C. patent solicitor, 23, Park row, New York.
Bowen Patrick A. brass finisher, 220th Sixth st. New York.
BOWEN WM. J. electrical supplies, Norwalk, Ohio.
Bower Bros. general platers, 197 Madison, Chicago, Ills.
Bowers G. E. electrician, Fitchburg, Mass.
Bowie S. R. & Co. glass shade makers and dealers, 11 Murray st. New York.
Bowie J. brass founder, 112, Front st. Brooklyn.
Bowie R. brass founder, 41 n 2nd st. Brooklyn.
Boyd J. asbestos and asbestos material manufacturer, 428, Market, Philadelphia.
Boyd John C. electrical instrument manufacturer, 203 W. 49th st. New York.
Boyle Jeffray, electrical instrument manufacturer, 63 Fulton st. New York.
Boyle Michael O. wood engraver, 28 Cedar st. New York.
Brabyn J. L. pottery (for porous cups), 213 Navy st. Brooklyn.
Bradley & Hubbard Manufacturing Co. manufacturers of electrical light fittings, N. Y.
Bradley C. T. electrician, N. Y.
Bradley J. charcoal makers and dealers, 168 Concord st, Brooklyn, N. Y.
Bradley Miles, charcoal makers and dealers, 421 Cherry st, N.Y.
Brady Alfred, cast iron pipes and fittings, 43 Greene, 1483 Broadway and 540 W. 55th st. N. Y.
Bragg Everett B. analytical chemist, 84 Broad st, N. Y.
Brand E. C. M. copper scroll lightning rod manufacturer, Indiapolis, Ind.
Brandis Frederick E. mathematical instrument maker, 55 Fulton st. N. Y.
Brandon & Co. metal brokers, 105 John st. N. Y.
Brandon H. & E. metal brokers, 69 William st. N. Y.
Brandt Frank, mathematical instrument maker, 2408 First av. N. Y.
Brandt Randolph, steam packing manufacturer, 48 Jefferson st. N. Y.
Brayton Pet Engine Co. steam engine makers, 50 Federal st. Boston, Mass.
Breckenbridge H. W. electrician, Providence, R. I.
Breite Conrad, glass manufacturer, 22 N. Moore st. N. Y.
Brennan Thomas, electrician, 195 Broadway N. Y.
Brereton Wm. H. patent solicitor, 639 F st. Washington, D. C.
Brewer H. J. electrician, N. Y.
Brick M. electrician, 195 Broadway, N. Y.
Bridgeport Brass Co. brass and copper manufacturers, 19 Murray st. N. Y.
BRIDGES LYMAN, mechanical engineer, San Francisco, Cal.
Bridgewater Iron Co. copper and brass seamless tubes, 73 Pearl st. N. Y. opposite Coenties slip. Nahum Stetson jr. agent.
Briesen & Betts, patent solicitors, 229 Broadway, N. Y.
Brigg J. & Son, general platers, 65 Clifford st. Providence, R. I.
Brightly Joseph H. wood engraver, 52 John st. N. Y.
Brinckman A. electrician, Astoria, N. Y.
Brinkerhoff Charles E. L. glass manufacturer, 17 Murray st. N. Y.
BRINKERHOFF C. M. electrician, 219 E. 18th st. N. Y.
Brinkerhoff John P. electrotyper, 166 Greenwich st. N. Y.
Bristol Brass & Clock Co. electrolier and chandelier manufacturers, 32 Warren and Forrest ville, Ct.
Britton Edward E. electric lamp manufacturer, agent for the sale of arc & incandescent lights, manufactured under patents of the U. S. Electric Lighting Co. of New York, 44 Court st. (room 33), Brooklyn, N. Y.
Brockner, Evans & Co. wire manufacturers, 422 West st. New York.
Brodie & Campbell, brass founders, 90 Plymouth st. Brooklyn.
Bromhead G. wire manufacturer, Paterson st, New Jersey.
Bromley J. C. general plater, New Haven, Conn.
Brookes W. Colborne, patent solicitor, 19 Park pl. New York.
Brookfield William, glass manufacturer, 34 Cliff st. N. York.
Brookfield Wm. glass manufacturer, Grand cor. Morgan st. Brooklyn.
Brooklyn Brass & Copper Co. brass and copper manufacturers, 100 John st. New York.
Brooklyn Brass & Copper Co. brass goods manufacturers, cor. Pearl and Front sts. Brooklyn.
Brooklyn Smelting Works, smelters, 87 N. 5th st. Brooklyn, New York.
Brooks E. J. & Co. railroad supplies, 10 Cortlandt st. New York.
Brooks Augusta J. optician, 58 Gt. Jones st. New York.
Brooks David, insulator manufacturer, 22 South 21st st. Philadelphia.
Brooks D. electrician, Philadelphia, Pennsylvania.
Bross Robert S. wood engraver, Ann st. New York.
Brower H. J. electrician, 195 Broadway, New York.
Brown, A. & F. manufacturers of shafting, pulleys, &c., 57 Lewis st. New York.

Digitized by Google

Brown Brothers, patent solicitors, 28 School st. Boston, Mass.
Brown & Brothers, brass and copper manufacturers, 82 Chambers st. New York.
Brown & Brothers, wire manufacturers, Waterbury, Conn.
Brown & Brown (late Brown & Allen) patent solicitors, 262 Broadway, New York.
Brown, Carlisle & Co. electrical instrument manufacturers, 180 Friendship st. Providence, R. I.
Brown & Owen, iron pipe manufacturers, 129 Noble st. Philadelphia.
Brown A. S. electrician, 135 Broadway, New York.
Brown E. patent solicitor, 311 Walnut st, Philadelphia, Pa.
Brown, H. E. general dealer, 191 Eddy st. Providence, R. I.
Brown J. S. patent solicitor, 810 F st, Washington, D. C.
Brown J. W. electrician, Augusta, Georgia.
Brown William, importer of steel, 95 John st. New York.
Browne, R. H. telegraph superintendent, Mattoon, Ell.
Brownell C. electrotyper, Lafayette, Ind.
Brownlee & Co. telephone apparatus makers, Office Foot of Shelby st. Detroit, Mich.
Bruce & Cook, metal dealers, 188, Water st., New York.
Brugman F. & Sons, manufacturing chemists, 41 Ann st. New York.
Brundage William T. designer and draughtsman, 14 John st. New York.
Bruneman Adolph, brass founder, 155 Perry st., New York.
Brush C. F. electrician, Cleveland, Ohio.
Brutsche Solomon, turner, 106 W. 37th st. New York.
Brush Electric Association, 404, Market st., St. Louis, Mo. Agent for Brush Electric Co.
Brush Electric Association, 5th & Olive sts. St. Louis.
Brush Electric Co. 7, South st. Baltimore, Md.
Brush Electric Co., Parent Company, 379 Euclid avenue, Cleveland, Ohio.
Brush Electric Illuminating Company of New York, electric light system, 853 Broadway, corner of 14th st. New York.
Brush Electric Illuminating Co. 583 Broadway, New York.
Brush Electric Light Company, of N. E. 853 Broadway, New York.
BRUSH ELECTRIC LIGHT CO. telegraph supplies, 783 Broadway, New York.
Brush Electric Light Co. 5 Pemberton sq. and 5 Lancaster st. Boston, Massachusetts.
BRUSH ELECTRIC LIGHT CO. telegraph supplies, Baltimore, Moreland.
BRUSH ELECTRIC LIGHT CO. telegraph supplies, Boston, Massachusetts.
Brush Electric Light Co., Chattanooga, Tennessee.
Brush Electric Light Co. 116 La Salle st. Room 13, Chicago, Ill.
Brush Electric Light Co. 317 Plum st. Cincinnati, Ohio.
BRUSH ELECTRIC LIGHT CO. telegraph supplies, Cleveland, Ohio.
Brush Electric Light Co. 81 and 83 Third st. Detroit, Mich.
Brush Electric Light Co. Louisville, Ky.
BRUSH ELECTRIC LIGHT Co. telegraph supplies, Philadelphia, Ohio.
Brush Electric Light Co. Johnson st. between 20th and 21st st. Philadelphia, Pa.
Brush Electric Light Co. Rochester, New York.
BRUSH ELECTRIC LIGHT CO. telegraph supplies, St. Louis, Mo.
Brush Electric Light Co. Topeka, Kas.
Brush Electric Light Co. 5 and 7, West Seneca st. Buffalo, New York.
Brush Electric Light & Power Co. 71 Ontario st. Cleveland, Ohio.
Brush Electric Light & Power Co. Atlanta, Ga.
Brush Electric Light & Power Co. Columbus, Ga.
Brush Electric Light & Power Co. Galveston, Texas.
Brush Electric Light & Power Co. Maxon, Ga.
Brush Electric Light & Power Co. Indianapolis, Ind. (Jno. Cavenprest).
Brush Electric Light & Power Co. Knoxville, Tenn.
Brush Electric Light & Power Co. Memphis, Tenn.
Brush Electric Light & Power Co. Montgomery, Ala.
Brush Electric Light & Power Co. Butte, Montana.
Brush Electric Light & Power Co. Helena, Montana.
Brush Electric Light & Power Co. Butler, Mo.
Brush Electric Light & Power Co. Niagara Falls, New York.
Brush Electric Light & Power Co. Nashville, Tenn.
Brush Electric Light & Power Co. Savannah, Ga.
Brush Electric Lighting Co. 209, Washington st. Roger's-bdg. Rooms 21 and 22, Boston, Mass.
Buchan, C. H., & Co., nickel platers, r. 59, Ann-street, New York.
Buchanan, James C., nickel plater, 90, Fulton-street, New York.
Buchholz, Louis, wire worker, 150, Centre-street, New York.
Buck, W. Y., & Co., general platers, Willimantic, Conn.

Digitized by Google

Buckingham, C. L., electrician, Elizabeth, N.J.
Buckler, John, designer and draughtsman, 43, Astor h, New York.
Buckley, T., & Co., lightning rod manufacturers, 462, N. Taylor gr. Chicago, Ills.
Buckley, G. E., patent solicitor, 903, Walnut-street, Philadelphia, Pa.
Buckley, H. V., patent solicitor, 903, Chestnut-street, Philadelphia, Pa.
Buckley, Thomas M., telegraph supplies, 61, Cedar-street, New York.
Budde & Westerman, tin foil manufacturers, 50, Vesey-street, New York.
Buel & Brevoort, mechanical engineers, 206, Broadway, New York.
Buell, M. A., & Sons, electrical instrument manufacturers, 76, Frankfort-street, Cleveland.
Buell, Charles E., electrician, Washington, D. C.
Buffum, D. & H., & Co., felt makers, 71, Greene-street, New York.
Buhler, Frederick, coppersmith, 92, Eldridge-street, New York.
Bulger, T., brass founder, 70 N 2nd-street, Brooklyn.
Bulkley, Theodore A., chemical manufacturer, 82, Fulton-street, New York.
Bullock, M. C., agent for brush electric company, 84 to 88, Market-street, Chicago, Ill.
Bunardo, Auondo, telegraph superintendent, Havana.
Bunnell & Demarcot, gold and silver platers, 587, Broad-street, Newark, N. J.
Bunnell, J. H., & Co., electrical supplies, 112, Liberty-street, New York.
Bunnell, J. S., patent solicitor, Capbondale, Pa.
Bunting, Howard, metal broker, 104, John-street, New York.
Burchell R. W. general gold plater, 92, 1st st. E. D. Brooklyn, New York.
Burger Franz, electrician, Washington, D. C.
Burger F. H. electrician, Plainfield, New Jersey.
Burgess, Jonasson & Co. iron pipe manufacturers, Warren, Pa.
Burghardt H. G. electrician, 237 W. 4th st. New York.
Burke, Frazer & Connett, patent solicitors, 10 Spruce st. New York.
Burkhard Thomas, coppersmith, 125 White st. New York.
Burkhart Etta, coppersmith, 45 Allen st. New York.
Burn, T. electrician, Chicago, Ills.
Burnap William H. electrical instrument manufacturer, 259 W. 27th st. New York.
Burnet & Leonard, iron pipe manufacturers, 448 Ogden, Newark, New Jersey.
Burrell S. J. telegraph supplies, Merchants Mfg. & Const. Co. 40 Broad st. New York.
Burrel's D., Sons, electrolier and chandelier manufacturers, 120 Chamber st. New York.
Burridge & Co. patent solicitors, Superior st. Cleveland, Ohio.
Burris Wm. patent solicitor, 529 7th st. Washington, D. C.
Burrows William, model maker, 85 Beekman st. New York.
Burton Iron Works, steam engine makers, Corner Front and Peart st. Brooklyn, New York.
Bush & Hollingsworth, plumbago merchants, 39, Dey st. New York.
Bushwich Glass Works, glass manufacturers, corner Grand & Morgan avenues, Brooklyn.
Buswell W. F. mechanical engineer, 223 Mission st. San Francisco, Cal.
Butler Howard R. patent solicitor, 32 Park pl. New York.
Butt Charles, wood engraver, 48 Beekman st. New York.
Byers A. M. & Co. iron pipe manufacturers, 93 Water st. Pittsburgh, Pa.
Byrne Joseph & Son, metal brokers, 86 Beekman st. New York.
Byrne Edward F. metal broker, 54 Cliff st. New York.
Byrne John, optician, 314 E. 21st st. New York.

C.

Cabble William, wire manufacturer, Excelsior Wire Manufacturing Co. 43 Fulton st. New York.
Caffrey, Murray & Wilson, calcium lights, 414 Bleecker st. New York.
Cahill John, brass finisher, 207 Centre st. New York.
Cal & Mex, steamship line, 10 Market st. San Francisco.
Cala Wire Works Co. wire manufacturers, 6 Cala st. San Francisco, Cal.
Calafornia electrotype Works, electrotypers, 134 Sutter st. Philadelphia, Pa.
Calafornia Type Foundry, electrotypers, 511, Sansom st. Philadelphia, Pa.
Calder John L. lead pipe manufacturer, 121 E. 13th st. New York.
California Electric Light Company, agent for brush electric, 220 to 226 Jessie st. E. from 4th st. San Francisco, Cal.
California Electric Light Co. 17 St. Anne's bdgs. San Francisco, Cal.
Calafornia Electric Works, general platers, 134 Sutton st. San Francisco, Cal.
California Electrical Works, electrical instrument manufacturers, 134 Jutter st. San Francisco, Cal.
Call W. H. telegraph operator, Union st. Mo.

Digitized by Google

Callahan E. A. telegraph supplies, 34 Pine st. New York.
Callaghan J. general plater, 26 Potter st. Providence, R. I.
Callon M. A. charcoal maker and dealer, Eastern Avenue and Dancanel st. Baltimore, Md.
Cameron, Amberg & Co. file makers, 69 Duane st. New York.
Camm Theodore, metal dealer, 445 E. 10th st. New York.
Cammeyer Dewitt C. wood engraver, 77 Nassau st. New York.
Campbell & Co. electrotypers, 174 Elm st. Cincinnati, Ohio.
Campbell Mining & Reducing Co. metal workers, 175 N. 10th st. Brooklyn and New York.
Campbell & Thayer, oil merchants, 89 Maiden lane, New York.
Campbell Edward B. designer and draughtsman, 58 Ann st. New York.
Campbell Felix, iron pipe manufacturer, 79 John st. New York.
Campbell Wm. H. railroad supplies, 19 Union sq. New York.
Campbell William W. cast iron pipe maker, 85 Liberty st. New York.
Candee W. D. electrician, Brooklyn, New York.
Cannon C. N. & Co. lightning rod manufacturers, 38 Cortlandt st. New York.
Capewell W. H. electrician, Philadelphia, Pa.
Carey and Moen, wire manufacturers, 234 W. 29th st. New York.
Carleson A. D. gold and plain plater, 21 Brattle st. Boston, Mass.
Carlisle & Elliot, patent solicitor, Stenbenville, O.
Carlos Avalos, telegraph superintendent, Sub-Directors de Telegraph, Havana.
Carnegie Andrew, importer of steel, 55 Broadway, New York.
Carney M. J. electrician, Toledo, Ohio.
Carpenter Allan, coppersmith, 103 N. More st. New York.
Carr David & Son, electrotypers, 24 Beekman st. New York.
Carr, Nicholson & Co. writing ink manufacturers, 19 Dey st. New York.
Carr J. pottery for porous cups, 440 W. 13th st. New York.
Carroll & Co. felt makers, 113 Spring st. New York.
Carroll Richard, metal dealer, 387 South st. New York.
Carry, Daniel & Co. paraffin wax manufacturers, 220 Franklin st. Boston, Mass.
Carter, Dinsmore & Co. writing ink manufacturers, 36 Dey st. New York.
Carter & Girard, screw manufacturers, Cleveland, Ohio.
Carter C. M. patent solicitor, 511 7th st. Washington, D. C.
Cary & Niven, wire manufacturers, 164 Lake st. Chicago, Ills.
Casebolt Hy. electrician San Francisco, Cal.
Cash J. & J. brass polishing webbing manufacturers, 69 Mercer st. New York.
Casper & Gommerlad, pottery for porous cups, 207 State st. New York.
Cassell, Petter & Galpin, scientific booksellers, 745 Broadway, New York.
Cassidy & Son, electric light fixtures, 129 Mercer st. New York.
Castner H. Y. & Bro. analytical chemist, 197 Pearl st. New York.
Catlin F. electrician, 195 Broadway, New York.
Catlin Seth C. electrolier and chandelier manufacturer, 60 Duane st. New York.
Central Consolidated Cable Office, telegraph company, 16 Broad st. New York. J. Brown manager, J. B. Case night manager.
Central Glass Co. glass manufacturers, Wheeling, W. Va.
Central Iron Works, steam engine makers, 2014 Jackson st. Louis, Mo.
Central Pa. Telephone Supply Co. electrical instrument manufactory, Williamsport, Pa.
Central Pottery Co. pottery for porous cups, 361, Fushing avenue, Brooklyn.
Central & South Am. Telegraph Co. 37 Wall st. New York.
Central & Western Telph. Co. 110 Lasalle, Chi.
Chaffee & Cummings, charcoal makers and dealers, 35 Hawley and East Cambridge st. Boston, Mass.
Chalmers Spence Co. asbestos and asbestos material manufacturers, 23 John and ft. E. 9th st. New York.
Chamberlain & Co. patent solicitors, 735 Broadway, New York, and 207 Clark st. Chicago, Ills.
Chamberlain H. B. general plater, Louisville, Ky.
Chamberlain J. F. gold and plain plater, 21 School st. Boston, Mass.
Chamberlain O. P. brass founder, 12 Spruce st. St. Louis.
Chamberlin Benj. B. wood engraver, 34 Park row, New York.
Chamberlin —, agent for the sale of patents, 735 Broadway, New York.
CHAMBERS BROS. tallow and grease merchants, 81 Pine st. New York.
Chambers Bros. & Co. mechanical engineers, 52nd st. and Lancaster avenue, Philadelphia, Pa.
Chambers J. C. electrician, Cincinnati, Ohio.
Chamber's National Lightning Process Co. lightning rod manufacturers, 145 Central av. Cincinnati, Ohio.
Chandler, Quarles & Co. glass manufacturers, 34 Hanover, Balt. Md.
Chandler H. electrotyper, 13 E. Swan st. Buffalo, New York.
Chapin G. L. patent solicitor, 152 Dearborn, Chicago, Ills.
Chapman Henry S. railroad supplies, 35 Broadway, New York.

Digitized by Google

Chapman H. W. mechanical engineer, 11 Mechanic st. Newark, New Jersey.
Chapman W. H. electrician, Middlebury, Vt.
Chase H. A. electrician, Lynn, Mass.
Chaskel James, manufacturing chemist, 44 W. Broadway, New York.
Chatfield Cyrus H. leather belting manufacturer, 29 Ferry st. New York.
Cheever Electric Belt Co. electrical instrument makers, 123 Washington st. Chicago, Ills.
Cheever C. A. electrician, New York.
Chelmsford Foundry Co. iron pipe manufacturers, 131 Portland st. Boston, Mass.
Chemical Copper Co. Phœnixville, Pa.
CHESTER MICA & PORCELAIN CO. powder manufacturers, 87 Liberty st. New York.
Chester Pipe & Tube Co. (iron) Chester, Pa.
Chicago Electric Manufacturing Co. electrical instrument manufacturers, 4 Rush st. Chicago, Ills.
Chicago Electric Manufacturing Co. 4 Rush and 88 E. Lake st. New York.
Chicago Electrical Society (Scientific), 104 La Salle st. Chicago.
Chicago Electrotype News Co. 175 Monroe st. Chicago.
Chicago Screw Co. 106 W. Washington, Chicago.
Chicago Telephone Co. Chicago.
Chicago Telegraph Supply Co. cor. Washington and Market st. Chicago.
Chichester Clarence, patent agent, 34 Park row, New York.
Childs W. A. electrician, Englewood, New Jersey.
Chinnock Charles E. electrician, Metallic Telegraph Co. 196 Broadway, New York.
Choyer T. general plator, 287 Main st. Buffalo, New York.
Christy G. H. patent solicitor, 96 Diamond st. Pittsburgh, Pa.
Chrystopher J. W. scientific bookseller, 47 Dey st. New York.
Chubb, Henry Y. wood engraver, 116 Nassau st. New York.
Church & Co. manufacturing chemists, 129 Pearl and 82 Beaver sts. New York.
Church M. patent solicitor, 617 7th st. N. W. Washington, D. C.
Cincinnati Brass Works, brass founders, 15 E. 8th st. Cincinnati, Ohio.
Cincinnati Electric Clock Co. Cincinnati, Ohio.
Cincinnati Electric Light Co. 161 W. Pearl st. Cincinnati, Ohio.
Cincinnati Electric & Calcium Light Co. 365 Vine st. Cincinnati, Ohio.
Cincinnati Gas Co. electric apparatus for lighting gas, Cincinnati, Ohio.
Cincinnati Lead Pipe & Sheet Lead Works, 17 E. 9th st. Cincinnati, Ohio.
Cincinnati & Newport Iron & Pipe Co. Newport, Ky.
Cincinnati Rl. Rd. & Telegraph Supply Co. 53 W. 2nd st. New York.
Cincinnati Sta. Engine & Hy. Works, 3rd corner Lock st. Cincinnati, Ohio.
Cincinnati Type Foundry, electrotypers, 201 Vine st. Cincinnnti, Ohio.
Citizen Electric Light Co. Toledo, Ohio.
City & Suburban Telegraph Assurance, 4th st. cor. Walnut st, Cincinnati, Ohio.
Claremont Manufacturing Co. electrotypers, Claremont, N. H.
CLARK W. C. & Co. electric alarm manufacturers, 205 Federal st. Portland, Mass.
Clark J. & Co. general platers, 10 E. 6th st. Cincinnati, Ohio.
Clark & Raymond, patent solicitors, 29 Pemberton square, Boston, Mass.
Clark G. T. general plater, Pittsfield, Mass.
Clark H. A. electrician, Boston, Mass.
Clark J. S. electrotyper, Troy, New York.
Clark L. W. electrical instrument manufacturer, 91 Westminster st, Providence, R. I.
Clark J. W. electrician, Etna, Ohio.
Clark Minford S, brass founder, r. 14 Wooster st. New York.
Clark W. C. electrician, Portland, Me.
Clarke Charles L. mechanical engineer, 65 Fifth avenue, New York.
Clarke John T. wire worker, 172 W. Broadway, New York.
Claudat Frank, brass founder, 117 Maodougal st. New York.
Clay John junr. manufacturing chemist, 60 Cedar st. New York.
Cleland Thomas, electrician, 38 Union square, New York.
Clement L. H. patent solicitor, 5 Trement st. Boston, Mass.
Clenching Screw Co. Milford, Mass.
Cleveland Nickel Works general platers, 203 Canal st. Cleveland, Ohio.
Cleveland Electrotype Foundry, 55 Frankfort st, Cleveland, Ohio.
Cleveland R. M. Co. wire manufacturers, 91 Lake st. Chicago, Ills.
Cleveland R. M. Co. wire manufacturers, 90 Water st. Cleveland, Ohio.
Cleveland R. M. Co. wire manufacturers, 239 Franklin st. Boston, Mass.
Cleveland Wire Works, 756 St. Clair st. Cleveland, Ohio.
"Climax" Manufacturing Co. Manifold paper, &c.; Geo. Cumming agent, 219 E. 18th st. New York
Cobanks & Theall, anti-fouling boiler makers, 65 Bethune st. New York.

Digitized by Google

Cocheu Jacob, wood engraver, 60 Chatham st. New York.
Cocheu Noah L. wood engraver, 103 Beekmam st, New York.
Cochrane A. & Co. manufacturing chemists, 55 Kilby st, Boston.
Cocker Brothers & Co. copper manufacturers, 11 Broad st, Boston, Mass.
Coddington T. B. & Co. metal dealers, 27 Cliff st, N. Y.
Coe Brass Manufacturing Co. Torrington, Conn.
Cohansey Glass Manufacturing Co. 32 N. 4th st. Philadelphia, Pa.
Cohen Hiram, optician, 203 E. 55th st. New York.
Coit Tracy, metal spinner, 19 Vandewater st, New York.
COLBURN J. W. & CO. Fitchburg, Mass. MANUFACTURERS OF DYNAMO MACHINES FOR ELECTRIC LIGHTING AND ELECTRO PLATING.
Cole J. J. copper scroll lightning rod manufacturer, 723 J. T. (Franklin Lightning Rod Works), St. Louis.
Cole Wm. A. & Co. oil merchants, 41 Broad & 389 W. 12th sts, New York.
Coleman Henrietta, electrolier and chandelier manufacturer, 40 Ludlow st. New York.
College of Electrical Engineering, Henry Greer, Agent, 122 E. 26th st. New York.
Collins Edward, pattern maker, 127, Worth st, New York.
Collins Edwin W. electrician, W. U. T. Co. Cleveland, O.
Collins Sheldon, manufacturer of printing ink for telegraphs, 26 Frankfort st. New York.
Collins William, anti-fouling boiler maker, ft. Bogart st. New York.
Colorado Telephone Co. Denver, Col.
Colorado Electric Co. Denver, Col.
Colt Anson, emery and crocus manufacturer, 256 Canal st. New York.
Colt A. I. nickel plater, 279 Broadway, New York.
Columbia College School of Mines, 49th st, 4th avenue, New York.
Columbus Iron Pipe Co. Columbus, Ohio.
Colwell Lead Co. lead pipe manufacturers, 63 Centre, 524 Pearl st. and 1416 Broadway, New York.
"*Commercial and Railway Telegraphy, the Practical Telegraph Instruction Book*," how to become a proficient Telegraph Operator. 2nd Edition, revised and enlarged by J. P. ABERNETHY Superintendent Telegraph, Cleveland, Ohio. Sent post paid to any address on receipt of $1. cloth $1 25 cents.
Commercial Telephone Co. 468 Broadway, Albany.
Common Sense Engine Co. Springfield st. Ohio.
Composite Iron Works Co. wire workers, 53 Chambers st. New York.
Conlan B. & Co. nickel platers, 41 Lawrence st. Newark, New Jersey.
Connecticut Telephone Co. electric light and telephone company, New Haven, Conn.
Connelly & Co. wood engravers, 192 Broadway, New York.
Connelly J. H. electrician, Pittsburg, Pa.
Connolly Brothers & McTighe, patent solicitors, 91 Grant st. Pittsburg, Pa. 914 F st. Washington, D. C. and 1001 Chestnut st. Philadelphia, Pa.
Connolly P. brass founder, 351 Adam st. Brooklyn, New York.
Conrad & Murray, babbit metal makers, 30th and Chestnut st. Philadelphia, Pa.
Consolidated Electric Light Co. 55 New Church st. New York.
Consolidated Fruit Jar Co. glass manufacturers, 49 Warren st. New York.
Continental Telegraph Co. 95 Wall, 86 Beaver, 133 Pearl, 71 Worth, and 37 Broad sts. New York.
Continental Electric Light Co. Room 48, 115 Broadway, New York.
Continental Silver Plating Works, E. Haddam, Conn.
Cooke Brothers, general plater, 139 2nd avenue, Pittsburgh, Pa.
Cooke & Co. steam engine makers, 6 Cortlandt st. New York.
Cooke J. gold and silver plater, 65 Hamilton st. Newark, New Jersey.
Cooke Wesley, mineralogist, 141 Eighth st. New York.
Cooley C. A. electrician, N. Britain, Ct.
Coombs & Kindrick, nickel platers, 58 John st. New York.
Coombs T. silver plater, 360 Fulton st. Brooklyn, New York.
Cooper Charles & Co. analytical manufacturing and metallurgical chemists, 194 Worth st. New York: Works at Newark, New Jersey, near Chatham square.
Cooper, Hewitt & Co. wire manufacturers, 17 Burling slip, New York.
Cooper A. pottery (for porous cups), 181 Eagle st. Brooklyn, New York.
Copeland Charles W. mechanical engineer, 24 Park place, New York.
Cooper Tube Lightning Rod Co. 58 Public square, Cleveland, Ohio.
Cordeau Edward, optician, 151 Fulton st. New York.
Cordell W. B. patent solicitor, 218 Locust st. St. Louis, Mo.
Cornish T. E. electrical instrument manufacturer, 1111 Chestnut st. Philadelphia, Pa.
Corning Jasper, iron pipe manufacturer, 30 Platt st. New York.
Cort N. L. & Co. metal dealers, 245 Water st. New York.
Corwin Jm. manufacturer of india rubber goods, 306 Fulton st, Brooklyn, New York.
Cory Charles & Son, brass finishers, 278 Division st, New York.

Digitized by Google

Cotter H. maker of magnetic clothing, 44 Fourth E. D. Brooklyn, New York.
Coughlin William H. designer and draghtsman, 56 Cedar st. New York.
Coulan B &. Co. gold and silver platers, 45 Lawrence st. Newark, New Jersey.
Coupland L. B & Co. patent solicitors, 70 La Salle st. Chicago, Ills.
COURTENAY & TRULL, insulator manufacturers, 17 Dey st. New York.
Covell Charles H. electrolier and chandelier manufacturer, 1150 Broadway, New York.
Coville E. R. & Co. general platers, 119 Orange st. Providence R. I.
Cowles C. & Co. electrical switch manufacturers, New Haven, Conn.
Cowles E. H. electrician, Cleveland, Ohio.
Cox Stephen J. Co. Limited, wood engravers, 90 Nassau st. New York.
Cox Cornelius L. wood engraver, 34 Park row, New York.
Cox T. silver plater, 172 Fulton st. Brooklyn, New York.
Coy G. W. electrician, Milford, Ct.
Cozzens H. W. electrician, Newport, R. I.
Cragin H. W. patent solicitor, 617 7th st. Washington, D. C.
Craig J. A. I. electrician, Montreal, Canada.
Craighead & Elwell Manufacturing Co. electrolier chandelier manufacturers, 33 Barclay st. New York.
Craigie Chas. O'H. metal broker, 92 Beekman st. New York.
Crain Mark D. electrician, St. Louis.
Crampton Bros. drug mills, Monroe st. corner Jefferson st. New York.
Crane Bros. Manufacturing Co. steam engine makers, 10 N. Jefferson st. Chicago.
Crane & Chapuis, felt makers, 13 University place, New York.
Crane Michael, electrotyper, 21 College place, New York.
Crane M. G. & Co. electric alarm manufacturers, 267 Washington st. Boston, Mass.
Crane U. O. & Brother, metal brokers, 13 Platt st. New York.
Craske Chas. electrotyper, 21 Rose st. New York.
Crawford N. patent solicitor, 529 7th st. Washington, D.C.
Creamer Jas. mechanical engineer, Philadelphia Pa. & Cleveland, Ohio.
Crescent Electric Light & Motive Power Co. 68 Wall st. New York.
Crescent Electric Light & Motor Power Co. Atty: H. F. Averill, 120 Broadway, New York.
Crescent Tube Co. iron pipe manufacturers, 15 Public Landing, Cincinnati, Ohio.
Crescent Tube Co. Limited, iron pipe manufacturers, 165 First avenue, Pittsburgh, P.A.
Creuse Jules L. A. analytical chemist, 36 Beekman st. New York.
Crinty C. general plater, corner Race & Longworth st. Cin. Ohio.
Crocker, Bros. metal dealers, 32 Cliff st. New York.
Crocker Bros. & Son, zinc manufacturers, 11 Broad st. Boston, Mass.
Crooke John J. & Co. tin foil manufacturers, 163 Mulberry & 38 Crosby st. New York.
Crooke Smelting & Refining Co. solder manufacturers, 22 Burling slip, New York.
Crosby & Gregory, patent solicitors, 34 School st. Boston, Mass.
Crosscup & West, photograph engravers, 702 Chestnut st. Philadelphia.
Crumby & Settle, gold and plain platers, 372 Atlantic avenue, Boston.
Crystal Glass Co. 1601 Pittsburgh, Pa.
Crystal Glass Works, manufacturers and dealers in electrical glass, Wheeling, Va.
Cuche Chas. electrolier and chandelier manufacturer, 11 E. 14th r 122 E. 11th st. New York.
Culhane, Daniel, smelter, 87 N. 5th st. Brooklyn, New York.
Cullen F. balance maker, 59 S. 4 Philadelphia.
CUMMING & BRINKERHOFF, electrical and telegraph supplies, 218 East 18th st. New York.
Cumming Alexander M. mechanical engineer, 55 Broadway, New York.
Cumming Geo. mechanical engineer, electrician and designer and draughtsman, 211 E. 18th st. New York.
Cumming Warder, electrician, Supt. Mo. Pac. Railway, Sedalia, Mo.
Cummings & Rose, telegraph engineers, 113 n. 8th st. St. Louis.
Cummings E. patent solicitor, 1 Arcade bldg. Buffalo, New York.
Cummings, E. F. electrician, 195 Broadway, New York.
Cunard Line, 99 State st. Boston.
Cunningham Iron Works, iron pipe manufacturers, 83 Water st. Boston, Mass.
Cunningham, James, electric light fixture maker, 151 W. 29th st. New York.
Curley J. & Brother, opticians, 134 Nassau st. New York.
Currie Daniel & Co. grease and tallow merchants, 220 Franklin st. Boston, Mass.
Currie John H. chemical manufacturer, H. 206 E. 29th st. New York.
Currier C. & Sons, brass founders, 101 N. J. R. R. avenue, Newark, New Jersey.
Curtis A. G. & Co. iron pipe manufacturers, Cohoes, New York.
Curtis Chas. G. patent agent, 140 Nassau st. New York.
Curtis F. patent solicitor, 4 S. O. sq. Boston, Mass.
Curtis G. E. lightning rod manufacturer, 136 James st. New York.
Curtis L. E. electrician, 120 Broadway, New York.

Digitized by Google

Cusachs Philip G. designer and draughtsman, 22 N. William st. New York.
Cushing F. W. electrician, 195 Broadway, New York.
Cuthbert Thomas N. felt maker, 20 Cortlandt & 321 E. 22n sts. New York.
Cutter Frank L. glass shade maker, 7 Murray st. New York.
Cuttress Charles, electrician, Duxbury, Mass.
Cuzner Albin T. wood engraver, 48 Beekman st. New York.

D.

Daft L. electrician, Greenville, New Jersey.
Dahl Herman, charcoal maker and dealer, 315 E. Thirty-eighth st. New York.
Dakin E. A. electrical instrument manufacturer, 219 Sansom st. San Francisco, Cal.
Dalton & Meyersall, iron pipe manufacturers, 19 Union st. Boston, Mass.
Danforth Locomotive & Machine Co. steam engine makers, 175 Broadway, New York.
Daniel Charles E. chemical manufacturer, 181 Pearl st. New York.
Daniel Thomas, pattern maker, 60 Fulton st. New York.
Dannenhoffer Bros. glass manufacturer, Throop cor. Gang st. Brooklyn, New York.
Dannenhold B. & Co. iron pipe manufucturers, 99 W. Fifth st. Cincinnati, Ohio.
Dardonville J. electrolier & chandelier manufacturer, 136 E. Thirteenth st. & 37 E. Eighteenth st. New York.
Darkin Frank, mechanical engineer, 118 Liberty st. New York.
Darlington, John H. mechanical engineer, 31 Pine st. New York.
Daussau, Edward, pattern maker, 145 Centre st. New York.
David T. B. electrician, A. W. N. T. Co. Pittsburgh.
Davids John B. & Co. writing ink manufacturers, 184 William st. New York.
Davids Thaddeus & Co. writing ink manufacturers, 127 William st. New York.
Davis H. N. & Co. nickel platers, Milwaukie, Wis.
Davis's Oil Co. oil merchants, 37½ Water street, New York.
Davis & Watts, telegraph and electrical supplies, Monument, cor. Bureu st. Bald. Md.
Davis C. H. electrician, Washington street, New York.
Davis I. A. electrician, Philadelphia, Pa.
Davis Henry J. pattern maker, 12 Dutch street, New York.
Davis John P. wood engraver, 52 John st. New York.
Davis Samuel P. wood engraver, 52, John st. New York.
Davis James T. optician 127 E. Fifteenth st. New York.
Davenport James B. steam engine maker, 332 Water st. New York.
Davenport, N. patent solicitor, Troy, New York.
Davison Henry J. mechanical engineer, 231 Broadway, New York.
Davitt & Son, wire manufacturers, 1207 Dekalb avenue, Brooklyn, New York.
Davol John & Sons, metal dealers, 100 John st. New York.
Day & Barker, general platers, 227 Washington st. Boston.
Day W. H. Debaud & Co. designers and draughtsmen, 47 Lafayette pl. New York.
Day Austin G. telegraph supplies, 120 Broadway, New York.
Day Benjamin, designer and draughtsman, 48 Beekman st. New York.
Day William, glass shade maker and dealer, 47 Vesey st. New York.
Dayton John H. turner, 429 W. Fifty-third st. New York.
Dayton M. E. patent solicitor, 95 Fifth avenue, Chicago, Ills.
Deane L. patent solicitor, 515 Seventh st. Washington, D. C.
Dean, William B. glass manufacturer, 43 Murray street, bar and hotel glassware, New York.
De Beauvais Jules, mechanical engineer, 2 Howard st. New York.
Decker Henry, designer and draughtsman, 109 E. Thirteenth st. New York.
Deckinson C. B. manufacturer of indiarubber goods, 46 Court & 660 Atlantic avenues, Brooklyn, New York.
Deckler F. pottery (for porous cups), 61 Walton st. Brooklyn, New York.
D'Infreville Geo. electrician, 195 Broadway, New York.
Deknatel J. A. & Co. glass manufacturers, 4 Howard st. New York.
De la Chapelle E. & Co. manufacturers and dealers in electrical glass, So. Brooklyn.
Delagrandiere Jules, brass finisher, 218 Thompson st. New York.
Delano & Haines, promoters and brokers, 55 Broadway, New York.
Del. & Hud. Canal Co. Telegraph Co. Maiden la. & Dean st. Albany, New York.
Demarest, Abraham jr. wood engraver, 179 Broadway, New York.
Demilt, H. R. & Co metal dealers, 238 Water st. New York.
De Morest D. W. lightning rod manufacturer, 39 mechanic st. New York.
Demuth Bros. glass manufacturers and blowers, 80, Walker st. New York.
Denniston E. G. general plater, 653 Mission st. San Francisco, Cala.
Dental Mfg. Co. general platers, 5 S. Division, Buffalo, New York.

Digitized by Google

Denver W. J., electrician, Springfield, Mass.
Denyse, Wm. & Sons, electrotypers, 13 Frankfort st. New York.
Lepoele Van C. J. electrician, Chicago, Ills.
Der Techniker (German) *Paul Goepel* (s. m.), Tryon row, New York.
Destach A. mechanical engineer, 135, Main st. San Francisco, Cal.
Detroit Copper Mining Co. of Arizona, copper manufacturers, Detroit, Michigan.
Detroit Electrical Works, electrical instrument manufacturers, Detroit, Michigan, Boston, Mass.
Detroit & L. Sup. Copper Co. copper manufacturers, Detroit, Michigan.
Devoe Joshua D. glass cutter, 180 Centre st. New York.
Dewar D. electrician, Indianapolis, Ind.
De Wett C. Lent, dealer in electrotypes, 30 Park pl. New York.
Dewitt Wire Manufacturing Co., Belleville, New Jersey.
Dey James R. chemical manufacturer, 114 Nassau st. New York.
Dick Dundas & Co. manufacturing chemist, 112 White st. New York.
Dickerson, Vandusen & Co. metal dealers, 29, Cliff st. New York.
Dickerson E. N. jr. electrician, New York.
Diecks Pharmaceutical Extract Co. manufacturing chemists, 173, G'wich st. New York.
Diehl P. Elizabeth, electrician, New Jersey.
Dieterich Gustave, designer and draughtsman, 229, Broadway, New York.
Dietz R. E., manufacturer of street lamps, 54 Fulton street, New York.
Dill, G. H., electrotyper, 222 Gold st. Philadelphia, Pa.
Dill Vincent, electrotyper, 27 New Chambers st. New York.
Dillore R. F. electrician, Savannah, Geo.
Dinnen A. & J. brass finishers, 204 E. 29th st. New York.
Dion Charles, electrician, Montreal Canada.
Direct Cable Co. 122 State st. Boston, Mass.
Direct United States Cable Co. 16, Broad st. New York.
District Telegraph Co. 22 Devonshire st. Boston, Mass.
Dixon Crucible Co. graphite manufacturers, 229 R. R. avenue, Jersey City, N. Y. & 68 Reade st. N. Y.
Doane & Wellington Manufacturing Co. electrolier and chandelier manufacturers, 496 Cherry st. N. Y.
Dobbs John H. glass manufacturer, 60 Barclay, agt. for A. J. Beatty & Sons and Riverside Glass Works, New York.
Dodge & Olcott, chemical manufacturers, 88 William st. New York.
Dodge & Sinclair, leather belting manufacturers, 21 Park pl. New York.
Dodge & Son, patent solicitors, 700 9th st., Washington, D. C.
Dodge E. H. gold & plain plater, 4 Dock sq. Boston, Mass.
Dods P. electrician, 385, Bridge st. Brooklyn, New York.
Doherty E. manufacturer of india rubber goods, 444 1st st. E. D. Brooklyn.
Dolan Thos. electrician, 195, Broadway, New York.
Dolbear A. Emmerson, electrical supplies, Somerville st. Mass.
Dolge Alfred, felt maker, 122 E. 13th st. New York.
D'Oliveira L. & Co. tallow dealers, 383 W. 12th st. New York.
Domestic Telegraph & Telephone Co. 792 Broad st. New York.
Donaldson Joseph, electric light fixture maker, 74 E. 9th st. New York.
Donaldson Theodore P. wood engraver, 34, Park row, New York.
Donahoe Hugh, charcoal maker and dealer, 21, Mangin st. New York.
Donahue M. & P. tallow dealers, 654 W. 39th st. N. Y.
Donegan & Reilly, makers of copper and brass seamless tubes, 229, West st. New York.
Donhet A. E. electrotyper, 2, S. Walter st. Cleveland, Ohio.
Donn E. W. patent solicitor, 930 F. st. Washington D. C.
Donn Wilton C. patent solicitor, 115 Nassau st. New York.
Donnell J. F. & Co. electrolier and chandelier manufacturers, 822 Broadway, New York.
Donnelly J. R. & Co. glass cutters, White n Centre st. New York.
Donnelly Samuel, galvaniser, 343 W. 36th st. New York.
Donohue James, brass founder, 11 Laight st. New York.
Doran James, turner, 514, First avenue, New York.
Doremus Chas. A. analytical chemist, 52 Union sq. New York.
Doremus R. Ogden, analytical chemist, 52 Union sq. New York.
Dorflinger William F. glass manufacturer, 36, Murray, st. New York. Agent for Honesdale Glass Co.
Dorn Robert, optician, Third avenue n 146th st. New York.
Doubleday & Bliss, patent solicitors, 705 H st. Washington, D. C.
Doughty G. N. lightning rod manufacturers, Denison, Tex.
Douglas F. A. electrical supplies, over 28 Main st. Lockport, New York.
Dow George Q. telegraph pole manufacturer, North Epping, N. H.
Dowd P. A., electrician, 31 Milk st. Boston.

Digitized by Google

Dowden George A. burglar and fire alarms, 841, Broadway, New York.
Dowers Chas. W. turner, 186, W. Houston st. New York.
Downer A. S. electrician, 8 Broad st. New York.
Downer D. R. electrician, Produce Exchange, New York.
Downing J. M. iron pipe manufacturer, Newcastle, Pa.
Downs F. E. Downs, electrician, 550, Washington st. Boston, Mass.
Drawbaugh D. electrician, Eberly's Mills, Cumberland City, Pa.
Dresher Brothers, patent agents, Philadelphia.
Dreyfus Aaron & Co. manufacturing chemists, 15 Cedar st. New York.
Dreyfus Louis G. electrical supplies, 45 West 13th st. New York.
Driver Albert J. electrician, Galveston, Tex. Mex. Tel Co. New York.
Druliard & Hayes, iron pipe manufacturers, 344 Exchange, Buffalo, New York.
Drummer E. patent solicitor, 9 Tremont row, Boston, Mass.
Dryden James C. wood engraver, 119 Nassau st. and 92, Fulton st. New York.
Dubois Addison and Son, lead pipe manufacturers, 512 W. 30th st. New York.
Dubois P. general plater, 391 Washington st. Buffalo, New York.
Dudgeon Richard, tube expander manufacturer, 24 Columbia st. New York.
Dudrich Bros. mechanical engineers, 506, St. John st. Philadelphia, Pa.
Duell, Laass & Hey, patent solicitors, Syracuse, New York.
Duffie J. S. patent solicitor, 632, F st. Washington, D. C.
Dufor & Co. wire manufacturers, 34, N. Howard, Baltimore, Md.
Duggau P. J., electrician, Boston, Mass.
Duncalf John W. turner, 560 W. 23rd st. New York.
Dunham Thomas C. glass cutter, 68 Murray st. New York.
Dunlap S. M. electrician, Cincinnatti, Ohio.
Dunley William B. metal punchos, 254 South st. New York.
Duplex Safety Boiler Co. boiler (anti-fouling) maker, 34 Cortlandt st. New York.
Duren & Costigan, chronometer makers, 164 Maiden la. New York.
Durkee E. R. & Co. writing ink manufacturers, 135, Water st. New York.
Du Rois J. T. electrician, Haddonfield, New Jersey.
Durst William, metal spinner, r 120 Willeam st., New York.
Dusenbury B. M. electrotyper, 322, Harmony st. Philadelphia, Pa.
Dusenbury J. M. electrician, Buffalo, New York.
Duxbury J. W. electrician, Providence, R. I.
Dwight J. H. electrician, 195 Broadway, New York.
Dyhrenfruth P. C. patent solicitor, 204, Dearborn st. Chicago Ills.
Dyer & Wilber, patent solicitor, 519 F. st., Washington D. C.
Dyer R. N. electrician, New York.

E.

Eagle Tube Co. boiler tube makers, 662 W. 24th st. New York.
Eagle Zinc Works, zinc manufacturers, Hatmaker, Cincinnati, Ohio.
Eagleton Mfg. Co. wire manufacturers, 163 Lake st. Chicago, Ills.
Eakins S. jr. general plater, 618 Chestnut st. Philadelphia, Pa.
Eames Charles J. manufacturing chemist, 26 Pine st. New York.
East River Flint Glass Works, glass manufacturers, N. 11 cor. 2nd st. Brooklyn.
East Tennessee Telephone Company, 197 Broadway, New York.
Eastern Electric Light Co. 97 Fulton st. New York.
Eastern Electrical Mfg. Co. electrical instrument manufacturers, 115 Broadway, New York.
Eastes & Lauriat, scientific booksellers, Boston, Mass.
Eastwood Wire Mfg. C. wire manufacturers, Belville, New Jersey.
Eaton Cole & Burnham Co. iron pipe manufacturers, 58 John st. New York.
Eaton Telephone Co. 65 Henry st. Brooklyn.
Eaton Mrs. E. A. electrical instrument manufacturer, 111 Adams st. Chicago, Ills.
Eckel Frederick, mathematical instrument maker, 16 Burling st. New York.
Eckert T. T. electrician, 195 Broadway, New York.
Eckert W. H. corner of Greenwich and Liberty st. New York.
Eckert Wm. H. electrician, 196 Broadway, New York.
Eddy A. H. dynamo and magneto electric machine maker, 68 Market st. Hartford, Conn.
Eddy R. H. patent solicitor, 76 State st. Boston, Mass.
Edes O. Hart L. & Co. zinc manufacturers, Plymouth, Mass.
Edison Co. (The) for Isolated Lightning, 6 Ledger building, 6th and Chestnut sts.
Edison Electric Illuminating Co. (The) of New York. *Principal Office*—65 5th avenue, New York.

Digitized by Google

Edison Electric Illuminating Co. of Lawrence, Mass.
EDISON ELECTRIC LIGHT CO. *Principal Office*—65 5th avenue, New York.
Edison Electric Tube Co. electrical instrument manufacturers, 255 Pearl st. New York.
Edison Lamp Co. Newark, New Jersey.
Edison Machine Works, Goerck st. New York.
Edison Tube Co. 65 Washington st. New York.
Edison T. A. electric light engineers, 65 5th avenue, New York.
Edison Thomas A. electrician, 104 Goerck st. New York.
Edmonds Charles, wood engraver, 80 Nassau st. New York.
Edrehi Isaac D. manufacturing chemist, 227 Greenwich st. New York.
Edson Bros. patent solicitors, 711 G. st. Washington, D. C.
Edson's Speed and Pressure Recording and Alarm Gauges, for "Steam Dynamo-machines," indispensable for safety and economy; office 91 Liberty st. New York.
Edson Wm. patent solicitor, 7th exchange pl. Boston, Mass.
Edwards & Co. makers of electric annunciators and call bells, 41 Beaver, factory, Fourth avenue, and 138th st. New York.
Edwards Joseph & Co. mechanical engineers, 414 Water st. New York.
Edwards E. A. electrician, Cincinnati, Ohio.
Edwards Ja. silver plater, 60 Broadway, Brooklyn, New York.
Edwin, J. L. patent solicitor, 633 F st. Washington, D. C.
Egan K. & Co. cotton waste manufacturers, 19 Burling sl. and 86 John st. New York.
Ege Alex. H. electrical supplies, Mechanicsburg, Pa.
Eggert Charles B. copper and brass seamless tube manufacturer, 24, John st. New York.
Eggerts D. & Son, mathematical instrument makers, 74 Wall st. New York.
Ehrherdt Fred. turner, 182 W. Houston st. New York.
Ehrlich Jacob, optician, 3 Astor h. and 513 Broadway, New York.
Eich William, bone dealer, 87 Sheriff st. New York.
Eichleaum J. & Co. electrotypers, 48 Fifth avenue, Pittsburgh, Pa.
Eichling Henry, designer and draughtsman, 21 Park row, New York.
Eimer & Amend, chemical apparatus manufacturers, 205, 207, 209 and 211 Third avenue, corner 18th st. New York.
EINBERGLER RUDOLF, electrician, New York.
Ekelund E. general plater, 620 Merchant st. San Francisco, Cal.
Eldridge J. Morgan, electrical supplies, Philadelphia.
Eldridge S. W. electrician, Boston, Mass.
Electric Appliance Company, Limited, 147 E. 15th st. New York.
Electric Illuminating Co. Albany, New York.
Electric Light Co. 180 A. st. Washington, D. C.
Electric Manufacturing Company, 1020 Arch st. Philadelphia, Pa.
Electric-Medical Manufacturing Company, 38 Union sq. New York.
Electric Merchandising Company, telegraph supplies, 76 Market st. Chicago, Ills.
Electric Purifier Company, New Haven, Conn.
Electric Signal and Time Register Company, printers, 32 Park st. New York.
Electric Tube Company, electric instrument makers, 65 Washington st. New York.
Electrical Society of Chicago (*see list of officers*).
Electrical Society of New York (*see list of officers*).
Electrical Supply Company, 109 Liberty st. New York, Thos. Mace, agent; factory, Ansonia, Conn.
Electro Dynamic Company of Philadelphia, 121 S. 3rd st. Philadelphia.
Electro-Dynamic Company, 2009 Pine st. Philadelphia.
Electro-Engraving Company (Photographic), 66 Reade st. New York.
Electro-Graphic Company, electrical supplies, 2 Dutch st. New York.
Electro-Medical Manufacturing Company, 38 Union sq. New York.
Electro Silicon Company, 72 John st. New York.
Eliot & Eliot, patent solicitors, Astor house, New York.
Eliot Boyd, patent solicitor, 40 and 41 Astor house, New York.
Eliot Eugene N. patent solicitor, 40 and 41 Astor house, New York.
Elleman J. general plater, 9 Matthewson st, Providence, R. I.
Ellenville Glass Factory, 85 John st, New York, Charles A. Edwards.
Ellett Geo. C. Ogden, electrician, Utah.
Elliot C. E. general plater, 602 Cherry st. Philadelphia, Pa.
Ellis T. G. patent solicitor, Hartford, Conn.
Ellison A. general plater, 1 Duquesne way, Pittsburgh, Pa.
Ells & Doolittle, patent solicitors, 703 7th st. Washington, D. C.
Elm Street Plating Company, electrotypers, 176 Elm st. Cincinnati, Ohio.
Emanuels E. J. gold and plain plater, 83 Sudbury, Boston, Mass.

Digitized by Google

EMBIGLER RUDOLF, electrical inventor, New York.
Emmerich Frederick J. patent solicitor, removed to 138 Fulton st. New York.
Empire Chemical Company, 145 Broadway, New York.
Empire State Flint Glass Works, 104 Kent avenue, Brooklyn, New York,
Ely & Williams, importers of steel, 178½ Water st. New York.
Elms Joseph, electrician, Boston, Mass.
Emshute, copper scroll lightning rod manufacturer, 424 Willoughby avenue, Brooklyn, New York.
Enoch O. general plater, 38 Washington st. Chicago, Ills.
Endemann Hermad, analytical chemist, 33 Nassau st. New York.
En Holm O. A. eletrician, 580 Lorimer st. Brooklyn.
Ennis H. J. patent solicitor, 711 G st. Washington, D. C.
Enrique de Drantave, Inspector General, Telegraphs, Havana.
Erdensalz Chemical Co. chemical manufacturers, 120 Liberty st. New York.
Erie City Iron Works, steam engine makers, 45 Cortlandt st. New York.
Erie City Iron Works, steam engine makers, 132 F. 3rd st. Phila. Pa.
Erkenbrach John, manufacturing chemist, 34 Platt st. New York.
Espinosa Frank J. designer and draughtsman, 279 Sixth avenue, New York.
Estabrook Wires Co. screw manufacturers, Milford, Mass.
Estey W. Shephard, wire worker, 59 Fulton st, New York.
Eureka Glass Annealing Works, glass manufacturers, 95 Commercial st, Brooklyn.
European Telephonic Signal Association, New Bedford, Mass.
Evanovitch Gusser manufacturing chemist, 11 E. 10th st. New York.
Evans A. H. & Co. patent solicitors, 505 7th st. Washington, D.C.
Evans Fred & Co. electrolier & chandelier manufacturers, 44 Park pl. New York.
Evans Lindley M. metal broker, 112 John st. New York.
Evansville Brush Electric Light and Power Co. 205 Upper Third-st. Evansville, Ind.
Ewin H. general plater, Hartford, Conn.
Ewing C. electrician, Washington, D.C.
EXCELSIOR ELECTRIC CO. 68 Duane st. New York.
Excelsior Flint Glass Co. glass manufacturers, cor. Miltenberger and Ann sts. Pittsburgh, Pa.
Excelsior Nickle Plating Works, general platers, 82 Orange st. Providence, R I.
Exchange Telegraphic Co. 2 Broad st. New York.

F.

Faber Carl, 13 1st st. nickel plater, E. D. Brooklyn, New York.
Faberdufaur Adolph, mechanical engineer, 93 John st. New York.
Fagan J. & Son, electrotypers, 621 Commerce st. Phila.
Fagot J. & Son, glass cutters, 141 Elm st. New York.
Fahnestock John, electrician, 170, S. Eliot pl. Brooklyn.
Fairchild Sidney B., electrician, St. Louis.
Fairfield Chemical Works, acid manufacturers, 159 Front st. New York.
Falls Wire Mfg. Co. Cuyahoga Falls, Ohio.
Fanyon Dr. J. B., medical electrician, 193 6th avenue, Few York.
Fargo Electric Light and Power Company, Fargo, Dakota.
Farjeon Israel, patent solicitor, 75 Nassau st. New York.
Farmer Moses G., electrician, Danville, New York.
Ferrell James H., brass and copper manufacturer, 61 Astor h, New York.
Farrell T., brass founder, 358 2nd st. Brooklyn.
Farrington G. K., electrician, Kerksville, Mo.
Fawcett J., electrician, 589, Halsey st. Brooklyn.
FellsWm. S. & Co., electrolier and chandelier manufacturers, 20 College pl. New Yark.
Fellows J., screw manufacturer, 14 Durham pl. Brooklyn, New York.
Felt Joseph P. & Co., electrotypers, 25 Rose st. New York.
Felter & Co., wire workers, 86 Walker st. New York.
Fenn Joseph E. Circuit Mgr. W. N. E. 195 Broadway, New York.
Fergus Brush Electric Company, Fergus Falls, Minn.
Ferguson Bros. & Co., electrotypers, 15 N. 7th st. Phila.
Fernald G. M. D., electrical instrument maker, 12 Brattle st. Boston, Mass.
Ferris George B. & Co., grease and tallow merchants, 58 Pearl st. New York.
Fetter Drive Screw Co., telegraph supplies, 104 John st. New York.
Fiagri & Richmond, boiler (anti-fouling) compound makers, 66 Cortlandt st. New York.
Fidelity & Canonalty Co., glass manufacturers, 187 Broadway, New York.

Digitized by Google

Field C., gold and silver plater, 145 Green st. Newark, New Jersey.
Field Stephen D., electrician, 195 Broadway, New York.
Filmer John, wood engraver, 318 Broadway, New York.
Finckel Wm. H., patent solicitor, 637 F. st. Washington, D. C.
Findley D. L., electrician, 195 Broadway, New York.
Finger L., electrian, Melrose, Mass.
Fire Alarm and Police Telegraph Co., City-hall, Baltimore, Mass.
Fire Alarm Telegraph Co., Meeting st. Charleston, J. C.
Firman L. B., electrician, Chicago, Ills.
Fischer & Roscoe, wood engravers, 177 William st. New York.
Fiser F. E., electrician, Detroit, Mich.
Fish John, mechanical engineer, 39 Nassau st. New York.
Fish Wm. R., photographic engraver, 5 Chatham row, Boston, Mass.
Fisher A., gold and silver plater, 21 West st. Newark, New Jersey.
Fisher T. H., electrician, 195 Broadway, New York.
Fisher W. H., patent solicitor, 12 Wiggins buildings, Cinn. Ohio.
Fitch F. K., telegraph supplies, 40 Cortlandt st. New York.
Fitzgerald Michael J., leather belting manufacturer, 62 Centre st.New York.
Fitzmorris R., general plater, New Haven, Conn.
Fix William P., electrical instrument manufacturer, r. 100 Wooster st. New York.
Fleischmann A. F., electrical contractor and dealer, 27 S. 10th st. Phila. Po.
Flemming M. A., electrician, 107 State st. Boston.
Flemming O., electrician, 1009 Arch st. Phila. Pa.
Fletcher W. & A., steam engine makers, 266 West st. New York.
Flint N. M., electrician, 200 Joralemon, Brooklyn.
Floyd W. G., brass founder, 26 1st st. E. D., Brooklyn.
Flynn & Welsh, glass cutters, 202 E. 29th st. New York.
Folken J. H. A. & Brother, electrical iustrument manufacturers, 118 Montgomery st. San Francisco, Cal.
Foothill, J. silver plater, 79 Adams st. Brooklyn, New York.
Force A. gold and silver plater, 61 Mechanic st. Newark, New Jersey.
Ford & Kendig, iron pipe manufacturers, 712 Filbert st. Philadelphia.
Ford John, patent solicitor, 418 Pearl st. New York.
Forest City Lightning Rod Co. 12 Case place, Cleveland, Ohio.
Forman J. wire manufacturer, 127 Const st. Brooklyn, New York.
Forrest Charles B. wood engraver, 63 Fulton street, New York.
Forsey William S. wire manufacturer, 85 Beaver st. New York.
Foster C. E. patent solicitor, 509 7th st.Washington, D. C.
Fountain Ink Co. 75 John st. New York.
Fowler C. H. patent solicitor, 706 3rd st. Washington, D.C.
Fowler Plating Co. New Haven, Conn.
Fox & Drummond, metal brokers, 68 Wall st. New York.
Fox George & Son, anti-fouling boiler makers, 511 W. 34th st. New York.
Foy James S. wood engraver, 191 Broadway, New York.
Franc Rudolph & Co. chemical apparatus manufacturers, Long Island Terra-Cotta Works, 218 Fulton st. New York.
Francis & Loutrel, manufacturers of printing inks for telegraphs, 45 Maiden lane, New York.
Francis Valentine & Co. electrotypers, 517 Clay st. Philadelphia, Pa.
Francis H. D. optician, 163 9th st. E. D. Brooklyn, New York.
Francis Thomas, brass founder, 67 Vestry st. New York.
François Edward, glass cutter, 50 Beekman st. New York.
Frank F. S. electrical instrument manufacturer, 167½ Wood st. Pittsburgh, Pa.
Frank Marks, coppersmith, 40 Ludlow st. New York.
Franks C. optician, 280 Grand st. Brooklyn, New York.
Franks Charles, patent solicitor, 310 Grand st. New York.
Franklin Type Foundry, electrotypers, 168 Vine st. Cincinnati, Ohio.
Frasse & Co. telegraph construction tool makers, 62 Chatham st. New York.
Frasse Peter A. & Co. telegraph supplies, 95 Fulton st. New York.
Freeborn William A. & Co., metal dealers, 254 South and 501 Water st. New York.
Freeman Brothers, electrical instrument manufacturers, 37 Centre st. New York.
Freeman & Oneie, manufacturers of telephone brackets and pins, Claremont.
Freeman I. P. electrician, Chicago, Ills.
Freeman J. optician, 1613 Fulton st. Brooklyn, New York.
French C. B. telephone cabinet work, 1st st. & Vernon avenue, L. 3, New York.
French Frank, wood engraver, 76 Chambers st. New York.
French W. A. electrician, Camden, New Jersey.

Digitized by Google

Frepp & Kempf, turners, 175 Hester st. New York.
Freuchtwanger L. & Co. chemical manufacturers, 16 Dey st. New York.
Friedel C. electrician, Madison, Wis.
Friedlander R. & L. patent solicitors, 264½ Bowery st. New York.
Faiedli J. gold and plain plater, 9 Bromfield st. Boston, Mass.
Fries Alex & Brothers, chemical manufacturers, 92 Reade st. New York.
Frisby William, patent solicitor, 120 Broadway, New York.
Fuchs & Rudolphy, chemical manufacturers, 33 Canal st. New York.
Fuller Brothers & Co. boiler rivets and bolt manufacturers, 139 G'wich st. New York.
Fuller, Dana & Fitz, copper manufacturers, 110 North st. Boston, Mass.
Fuller Electrical Co. telegraph supplies, Boston, Mass.
Fuller Electrical Co., electrical instrument manufacturers, 44 E. 14th st. New York.
Fuller, F. W. electrical instrument manufacturers, 419 Sacramento st. San Francisco, Cal.
Fuller J. B. electrician, New York.
Fuller Josiah P. manufacturing chemist, 629 Hudson st. New York.
Fuller Sarah E. wood engraver, 25 Bond st. New York.
Fuller Seth W. flexible gas, speaking, telephone, &c., tube maker, 22 Milk st. Boston.
Fulmer L. A. general plater, Indianapolis, Ind.
Fultons A. Sons & Co. brass founders, 91 First avenue, Pittsburgh, Pa.
Fullerton, W. brass founder, 350 First st. E. D. Brooklyn.
Fyles T. H. general plater, Brockton, Mass.

G.

Gabriel & Schall, chemical manufacturers, 205 Pearl st. New York, borate of manganese.
Gall J. & Co. patent solicitors, 21 Union sq. New York.
Gallagher & Gilroy, glass cutters, 80 Cliff and 323 Pearl sts. New York.
Gallagher James, brass founder, 87 Centre st. New York.
Gallatin A. H. analytical chemist, 26 Cooper Union st. New York.
Gallinger & Co. electrolier and chandelier manufacturers, 36 Barclay st. New York.
Galvano Faradic Manufacturing Co. electrical instrument manufacturers, 288 4th avenue, New York.
Gamewell Fire Alarm Telegraph Co. 1½ Barclay st. New York.
Gangener & Walker, patent solicitors, 426, Walnut st. Philadelphia, Pa.
Gannis A. general plater, 202 Brown st. Philadelphia, Pa.
Gantz, Jones & Co. chemical manufacturers, 176 Duane st. New York.
Garber J. L. electrician, Greenville, Ohio.
Gardam W. & Sons, mathematical instrument makers, 96 John st. New York.
Gardineer G. W. electrician, 135 Broadway, New York.
Gardiner Herman, mechanical engineer, 7 Murray st. New York.
Garrard, J. D. patent solicitor, 44 Johnston bldg. Cinn. Ohio.
Garratt Wm. I. babbit metal maker, 138 Fremont, San Francisco, Cal.
Garrett Oscar, electrician, Boston, Mass.
Garrett W. H. electrician, Greenville, Pa.
Gaskell, Wm. & Son, bolt manufacturers, 433 E. 25th st. New York.
Gassett O. electrician, Boston, Mass.
Gautier Steel Co. Limited, wire manufacturers, Johnstown, Pa.
Gay, Clapp & Co. mechanical engineers, 370 Atlantic avenue, Boston, Mass.
Gaylord John T. chemical manufacturer, 32 S: William st. New York.
Gein Louis H. manufacturer of printing inks for telegraphs, 46 Vesey st. New York.
Gelson E. H. & Co. patent solicitors, 73 Corcoran bldg. Washington, D. C.
Gendar W. F. & T. V. mathematical instrument makers, 87 Fulton st. New York.
George Place Machinery Co. (The) manufacturers of shafting, pulleys, &c., 121 Chambers, and 103 Reade st. New York.
George Samuel D. designer and draughtsman, 114 Nassau st. New York.
Gerry Allston & Co. metal brokers, 68 Wall st. New York.
Gesner George W. analytical chemist, 45 Cliff st. New York.
Gesswein F. W. file maker, 89 John st. importer of all kinds of French, English and German files and tools for telephone and electrical instrument makers and Paterson File Works, Paterson, New Jersey.
Getze & Reeves, iron pipe manufacturers, 9 N. 5th st. Philadelphia.
Geyer Ferdinand, wood engraver, 317 Broadway, New York.
Gibbs A. B. & Co. oil merchants, 172 Pearl st. New York.
Gibney T. G. general plater, Fall River, Mo.
Gibson T. & Co. iron pipe manufacturers, 200 Vine st. Cincinnati, Ohio.

Digitized by Google

Gibson, copper scroll lightning rod manufacturer, 7, Geneseò, Ills.
Gibson George W. boiler (anti-fouling) maker, 138, Goerck st. New York.
Giese & Glocke, steam packing manufacturers, 18 Cedar st. New York.
Gifford William E. analytical chemist, 54 Pine st. New York.
Gilbert & Bennett Manufacturing Co. wire manufacturers, 42 Cliff st. New York.
Giles J. electrician, To Bend, Indiana.
Giles J. Lawrence, designer and draughtsman, 84, Nassau st. New York.
Gill R. general plater, 165 Seneca st. Cleveland, Ohio.
Gillelaud I. F. electrician, Indianopolis, Ind.
Gilmour Hazlett, wood engraver, 7 Murray st. New York.
Gilmour R. M. asbestos and asbestos material manufacturer, 82 John st. Philadelphia.
Gillmur David, patent solicitor, 53 Nassau st. New York.
Glass Dr. James, medical electrician, 1210 Filbert st. Philadelphia, Pa. electropathic physician.
Glass J. electrical instrument manufacturer, 1413 Chesnut st. Philadelphia, Pa.
Gleason E. P. Manufacturing Co. manufacturers & dealers in electrical glass, Houston & Mercer sts. N.Y.
Globe Gas Light Co. manufacturers of street lamps, 77 Union st. Boston, Mass.
Globe Foundry & Machine Works, steam engine makers, 133 W. 2nd avenue, Cincinnati, Ohio.
Globe Patent Agency, 34 Park row, New York.
Globe R. M. Co. wire manufacturers, Cincinnati, Ohio.
Globe Street Lamp Co. Eagle avenue, cor. John st. Morrisadia, New York.
Goble Henry M. glass manufacturer, 73, Murray st. New York.
Goebel J. & Co. crucible manufacturers, 129 Maiden la. New York.
Goebel C. H. electrician, Philadelphia, Pa.
GOEPEL PAUL, Staats-Zeitung bldg. Tryon row, New York. Solicitor of American and Foreign Patents. Publisher of *Der Techniker*.
Goetschius Howard, analytical chemist, 590 Washington st. New York.
Gold & Stock, telegraph company, 197 and 61, Broadway and 185 Fifth avenue, New York.
Gold & Stock Telegraph Co. 4th st. cor. Vine st. Cincinnati, Ohio.
Gold & Stock Telegraph Co. 110 La Salle st. Chicago, Ills.
Gold & Stock Telegraph Co. 7 Merchants Exchange, Boston, Mass.
Goldbacher Ernest, optician, 95 Fulton st. New York.
Gold's Heater Manufacturing Co. boiler (anti-fouling) makers. Gold's celebrated Safety Sectional Boiler and Triple Extended Surface Radiators, 624 to 642 E. 14th st. New York.
Goldstein William, boiler (anti-fouling) compound maker, 488 Cherry st. New York.
Goldbacher Ernest, patent solicitor, 98 Fulton st. New York.
Goldworthy J. E. patent solicitor, 3 Westminster st. Providence, R. I.
Good C. J. patent solicitor, St. Cloud bldg. Washington, D. C.
Goodhue & Binnie, iron pipe manufacturers, Springfield, Mass.
Goodnow & Wightman, tool manufacturers, 176 Washington st. Boston, Mass.
Goodrich A. B. electric alarm manufacturer, 180 Main st. Buffalo, New York.
Goodyear Rubber Co. rubber belting manufacturers, 83 Westminster st. Providence, R. I.
Gordon & Co. general platers, 37 N. Calvert st. Baltimore, Md.
Gordon A. general platers, 66th 5th avenue, Pittsburgh, Pa.
Gorn H. A. electrician, New York.
Goshen Safety Boiler Co. boiler (anti-fouling) makers, 39 Dey st. New York.
Goss L. W. electrician, Cincinnati, Ohio.
Gottlieb Adolph, patent solicitor, 172 Fulton st. New York.
Gottweiss Alwin, turner, 114 Prince st. New York.
Gould A. T. electrician, Cincinnati, Ohio.
Graf J. brass finisher, cor. Guinnett & Throop sts. Brooklyn.
Grafman D. N. & Co. general platers, 87 Friendship st. Providence.
Graham C. & Sons, turners, 305 E. 43rd st. New York.
Graham Chas. pottery for porous cups, 110 Metro. avenue, Brooklyn, New York.
Graham Malcomb M. D. electropath, Momence, Illinois.
Graham William H. telegraph supplies, 95 Liberty st. New York.
Gramme Electric Light Co. telegraph supplies, 115 Broadway, New York.
Grand Rapids Electric Light and Power Co. Grand Rapids, Mich.
Granby D. B. electrician, Washn. D. C.
Graphic Co. (The) photographic engravers, 41 Park pl. New York.
Graphite Steel Co. importers of steel, 231 Broadway, New York.
Graves & Hoffmire, coppersmiths, 14 James sl. New York.
Graves F. S. general plater, 58 State st. St. Louis, Mo.
Graves, G. general gold plater, 308 Fulton st. Brooklyn, New York.
Graves O. W. & Co. metal brokers, 21 Cliff st. New York.
Gray Peter L. de Mory & Co. chromometer makers, 62 South st. New York.

Digitized by Google

Gray Albert, mechanical engineer, 148 William st. New York.
Gray D. H. sulphur dealer, 259th st. Brooklyn, New York.
Gray Daniel H. sulphur refiner, 113 Maiden lane, New York.
Gray Elisha, electrical supplies, Highland park, Ill.
Gray Elisha, electrical engineer, 62 New Church st. New York.
Gray John G. chemical manufacturer, 103 Maiden la. N. Y.
Gray William S. chemical manufacturer, 103 Maiden la. New York.
Green J. & H. mathmetical instrument makers, 757 Broadway, New York.
Green Henry, electrician, 122 E. 26 gr. New York.
Green W. J. electrician, Washington, D. C.
Green S. W. M. D. electropath, Norwalk, Ohio.
Greenberg & Co. brass founders, 205 Fremont st. San Francisco.
Greenberg Solomon, electrolier and chandelier manufacturer, 323 E. Houston st. New York.
Greene, Tweed & Co. leather belting manufacturers, 118 Chambers and 382 Second avenue, New York.
Greenfield J. T. electrician, Brooklyn, New York.
Greenpoint Flint Glass Works, 915, Commercial st. Brooklyn, New York.
Greenpoint, brass founder, 70 West st. Brooklyn, New York.
Greer Henry, electrician, 122 E. 26th st. New York.
Gregg William T. mathmetical instrument maker, 77 Fulton & 128 Front sts. New York.
Gregory & Jones, drug manufacturers, 44 Beekman & 405 Cherry sts. New York.
Gregory H. T. electrician, Chelsea, Mass.
Gregory James, brass finisher, 106 Cannon st. New York.
Gregory William, brass founder, 106 Cannon st. New York.
Greis, Peter, turner, 180 Centre st. New York.
Gridley & Co. chemical manufacturers, 87 Maiden la. New York.
Gridley & Co. patent solicitors, 89 Madison st. Chicago, Ills.
Gridley, J. H. patent solicitor, 7 F st. Washington, D. C.
Grieshaber Christian, patent solicitor, 105 Clinton st. New York.
Griffin & Mount, general platers, 45 Franklin st. Chicago, Ills.
Griffin John L. electrical instrument manufacturer, 265 Broadway, New York.
Griffith & Marquelle, mechanical engineers, 6 W. Falls ovenue, Baltimore.
Griffith M. iron pipe manufacturer, 128 Front st. Brooklyn, New York.
Griggs Elizur D. brass and copper manufacturer, 63 Duane st. New York.
Grilley Co. screw manufacturers, N. Haven, Con.
Grote F. & Co. turners, 114 E. 14th st. New York.
Grothe George, brass founder, r 101 Wooster st. New York.
Grottke Frederick W. wire worker, 207 Bowery st. New York.
Grund Frederick A. analytical chemist 121 Front st. New York.
Grunow Julius, patent solicitor, 70 W. 39th st. New York.
G. S. & M. Iron Works, steam engine makers, 235 1st avenue, San Francisco.
Guch J. C. electrical instrument manufacturer, 18 Market st. San Francisco, Cal.
Guckles G. copper scroll lightning rod manufacturer, 1800 Jackson st. St. Louis.
Guental Louis C. felt maker, 21 E. 15th st. New York.
Gueraut George M. electrical instrument manufacturer, 41 Centre st. New York.
Guerin Pierre E. electrolier and chandelier manufacturer, 24 W. 3rd st. New York.
Guest J. H. electrician, Brooklyn, New York.
Guild James B. electrolier and chandelier manufacturer, 44 Murray st. New York.
Guiterman Alexander, manufacturing chemist, 159 Front st. New York.
Gullberg C. electrician, Jersey City, New Jersey.
Gunning Brothers, metal brokers, 104 John st. New York.
Gunthel B. glass manufacturer, 66 Reade st. New York.
Guth Henry, patent solicitor, 245, Bowery st. New York.
Gutta Percha & Rubber Mfg. Co. belting and packing manufacturers, 23 Park pl. New York.
Gwynn George, steam packing manufacturer, W. 26th st. New York.

H.

Haas & Hilgner, metal spinners, 180 Centre st. New York.
Haas John F. metal broker, 52 Broad st. New York.
Habirshaw William M. analytical chemist, 159 Front st. New York.
Hafelfinger Fred, belting manufacturer, 343 W. Thirty-seventh st. New York.
Hagan William, metal broker, 9 Burling st. New York.
Hagerty Bros. & Co, glass manufacturers, Smith cor. Hamilton avenue, Brooklyn.
Hagerty Brothers & Co. glass manufacturers, 10 Platt st. New York.

Digitized by Google

Haggerty George A. brass founder, 803 Third avenue, New York.
Hague W. E. general plater, 139 Second avenue, Pittsburg, Pa.
Hahn Abraham, belting manufacturer, 296 Broadway, New York.
Haight G. E. electrician, Hartford, Ct.
Hale David, nickel plater, r. 239, Mercer st. New York.
Hale W. B. electrician, Washington, D. C.
Haley, Josiah S. mechanical engineer, 76 Centre st. New York.
Halkyard W. electrician, Providence R. I.
Hall E. K. & Co. electrical instrument manufacturers, 163 Albany st. Boston, Mass.
Hall's Saml. Son, bolt manufacturers, 231 W. Tenth st. Telephone call Twenty-first st., No. 225 New York.
Hall Chandler, mechanical engineer, 262, Broadway, New York.
Hall H. C. patent solicitor, 261 Broadway, New York.
Hall Isaac, telegraph supplies, 43 r Centre st. New York.
Hall W. H. & Co. general platers, Middletown, Conn.
Hallahan & Cavanagh, glass cutters, 144 Greene st. New York.
Hallett James H. wood engraver, 47 Barclay st. New York.
Halsey & Allen importers of indigo, 182 Water st. New York.
Halsey John L. wood engraver, 7 Murray street, New York.
Halsey William G. designer and draughtsman, 74 College pl. New York.
Halsted J. J. patent solicitor 515, Seventh st. Washington, D. C.
Hamblet James, electrician, manager Times Service W. N. Telegraph Co., New York.
Hamilton & Lilley, metal punches, 536, W. Twenty-third st. New York.
Hamilton & Raimer, wire manufacturers, 1340 Vienna street, Philadelphia, Pa.
Hamilton George A. electrician, 195 Broadway, New York.
Hamilton Theodore B. steam engine maker, 135 Pearl st. New York.
Hamilton Walter, assayer r 120 William st. New York.
Hamlin C. N. & Co. lightning rod manufacturers, 319 Superior st. Cleveland, Ohio.
HAMMIL & GILLESPIE, talc merchants, 240 Front st. New York.
Hammond Samuel, chronometer maker 41 William st. New York.
Hampson, Edward P. & Co. steam engine makers, 36, Cortlandt st. New York.
Hampton Bros. electrical instrument manufacturers, 607 Mission st. San Francisco, Cal.
Hampton J. W. charcoal maker and dealer, Camden st. New Jersey.
Hanck C. J. & Son, metal workers, 36 Stagg st. Brooklyn, New York.
Hancock Inspirator Co. injectors and enjectors, 111 Liberty st. New York.
Handren & Robins, steam engine makers, 126 Washington st. New York.
Haner Joseph, pottery (for porous cups), 145 Chrystie st. New York.
Hann Otto, chemical manufacturer, 1 Cedar st. New York, successor to Louis Pokorny.
Hannon John, metal dealer, 5, Warick st. New York.
Hanson & Van Winkle, electrical instrument manufacturers, 236 Market st. Newark, New Jersey.
Hanson & Van Winkle, chemical manufacturers, 92 Liberty st. New York.
Harbert & Son, telegraph instrument makers, 86 La Selle st. Chicago.
Harding ,Newall & Co. gold and plain platers, 28 School st. Boston.
Hardy, M. A. electrician, Newport, R. I.
Harley Joseph S. wood engraver, 160 Fulton st. New York.
Harnickell A. copper manufacturer, 83 Maiden la. New York, agent for the Gunpowder Copper Works.
Harper Bros. scientific booksellers, Franklin sq. New York.
Harper William St. John, designer and draughtsman, 11 E. Fourteenth st. New York.
Harris A. C. & Co. electrical instrument manufacturers, Louisville, Ky.
Harris & Co. copper scroll lightning rod manufacturers, 54 Bromfield st. Boston, Mass.
Harris, F. E. electrician, 54 Bromfield st. Boston, Mass.
Harrison & Whitlock, electrotypers, 110½ W. Batlo st. Baltimore, Md.
Harrison Wire Co. wire manufacturers, 816 High st. St. Louis, Mo.
Harrop & Zerbe, patent solicitors, 188 W. Fifth st. Cincinnati, Ohio.
Hart, Ball & Hart, iron pipe manufacturers, 297 Main st. Buffalo, New York.
Hart, Lucius & Co. metal dealers, 10 Burling sl. New York.
Hartby, J. wire manufacturer, Waterbury, Conn.
Hartel Jacob, glass cutter, 137 Elm st. New York.
Hartford Engineering Co. steam engine makers, 72 Astor h. st. New York.
Hartford Machy. Screw Co. Hartford, Conn.
Hartford Wire Works (Jonas & Colser), wire manufacturers, Hartford, Conn.
Hartill William, brass finisher, r. 548 Grand st. New York.
Hartley C. H. general plater, 732 Sansom, Philadelphia, Pa.
Hartwell H. Edgar, designer and draughtsman, 40 E. 14th st. New York.
Harvard University, scientific course, Cambridge st. Mass.
Haskel, Thomas H. metal broker, 55 Cliff st. New York.

Digitized by Google

HASKINS, CHAS. D. electrical engineer, 7 & 9 Bond st. New York.
Haskins, C. H. electrician, Milwaukie, Wis.
Hassall Wm. rivet manufacturer, 63 & 65 Elizabeth st. New York.
Hasse Robert electrical supplies, Indianapolis, Ind.
Hastings & Hahn, glass manufacturers, 55 Murray st. New York.
Haswell Charles H. mechanical engineer, 29 Broadway, New York.
Hathanay D. L. (Cleveland Lightning Rod Co.) lightning rod manufacturers, Columbus, Ohio.
Hathaway J. G. patent solicitor, 29 School st. Boston, Mass.
Hatteroth & Russ, electrical instrument manufacturers, 321 Kearney st. San Francisco, Cal.
Hattman J. nickel plater, 37½ N. Seventh st. Philadelphia, Pa.
Haupt Bros. patent solicitors, 209 S. Fourth st. Philadelphia, Pa.
Haveland A. J. electrician, Fort Dodge, Iowa.
Havens S. & Co. gold and plain platers, 96 Court st. Boston.
Hawkins J. M. general plater, 620 Marchant st. San Francisco, Cala.
Hawksworth, W. E. & Co. wire manufacturers, 31 Oliver st. Boston, Mass.
Hawley L. J. lightning rod manufacturer, Seventh st. & La avenue, Washington, D. C.
Hayden & Baker, wire manufacturers, Columbus, Ohio.
Haydock Robert R. & Co. glass manufacturers, 75 Murray st., New York.
Hayes, A. L. patent solicitor, 95 Milk st. Boston, Mass.
Hayes C. H. electrician, Ansonia, Ct.
Hayford Creosoting Works, creosoted wood, 4 Post Office sq. Boston, Mass. & 10 Warren st. New York (E. R. Andrews, proprietor).
Hayman Arthur, wood engraver, 317 Broadway, New York.
Hazard Powder Co powder manufacturers, 57 Broadway, New York.
Hazard Theophilus D. metal broker, 204 Pearl st. New York.
Hazazer E. W electric alarm manufacturer, 33 Nassau st. New York.
Heard G. M. & Co., general platers, 109 Ontario, Cleveland, Ohio.
Heather Henry, boiler (anti-fouling), maker, 607 W. 38th st. New York.
Hebberd Charles E., designer and draughtsman, 33 Broadway, New York.
Hecking Fred. & Co., manufacturing chemists, 388 Pearl st. New York.
Hector Geo., patent solicitor, 8th avenue, c. W. 45th st. New York.
Hecla Powder Co., 57 Broadway, New York.
Heerdegen Ernest P., turner, White n. Elm st. New York.
Heidt L., glass manufacturer, 27 Whipple st. Brooklyn.
Heilbrun & Krymer, manufacturers of india rubber goods, 14 Dunham pl. Brooklyn.
Heim Leather Belting Co., 324 Pearl st. New York.
Heinemann Ernst, wood engraver, 46 7th st. New York.
Heinemann Godfrey, coppersmith, 112 John st. New York.
Heipershausen Brothers, boiler (anti-fouling) makers, 45 Thompkins st. New York.
Heister electric light Co. (The) St. Louis, Mo.
Heliotype Printing Co., photographic engravers, 211 Iremont, Boston, Mass.
Hellogg Milo G., electrical supplies, 220 Kinzie st. Chicago, Ill.
Henacker John E. pottery (for porous cups), 24 Church st. New York.
Henderson J. H., general plater, Holyoke, Mass.
Hendrick Dr. L. manufacturer of magnetic curative appliances, 467 5th av. (above 40th st.), New York.
Hendricks Brothers, copper manufacturers, 49 Cliff st. New York.
Henes William F., manufacturing chemist, 159 E. 88th st. New York.
Henry E. & Bonnard, bronze founders, 237 Mercer st. New York.
Henry Lucy A., electrician, 657 6th avenue, New York.
Herman L., electrician, Union st. New Jersey.
Hernin Martin, mathematical instrument maker, 56 South st. New York.
Horthee & Co., patent solicitors, 221 Olive st. St. Louis, Mo.
Hertwig Theodore, designer & draughtsman, 153 4th avenue, New York.
Heuermann William, steam guage manufacturer, 40 John st. New York.
Hewes & Phillips, mechanical engineers, cor. Orange & Ogden sts. Newark, New Jersey.
Hewison Charles W., brass founder, 169, Christopher st. New York.
Hewitt H. T., chronometer maker, 164, Maiden lane, New York.
Heydorf Samuel H., glass cutter, 174 Worth st. New York.
Heylmann C. J., electrical instrument manufacturer, 298 W. Lake st. Chicago, Ills.
Heylmun & Kane, patent solicitors, 510 F. st. Washington, D. C.
Heymann Solomon, wire worker, 119 avenue, A. New York.
Heymer J. C. & Co., electrotypers, 21 Province st. Boston, Mass.
Heyne F. W. & Brother, metal brokers, 13 William st. New York.
Hibberd & Ranock, manufacturers and dealers in electrical glass, Prince & Concord sts. Brooklyn.
Hibler & Ransch, glass manufacturers, 212 Concord st. Brooklyn.

Digitized by Google

Hickey Matthew H., nickel plater, 202 E. 29th st. New York.
Hicks & Smith, electric light fixture makers, 42 S. 5th avenue, New York.
Hicks James M., mechanical engineer, 19 Park place, New York.
Hieatzman A. Howard, telephone apparatus maker, 346, North Stricker st. Baltimore, Md.
Hiepe Henry C., analytical chemist, 104 John st. New York.
Higgins & Hughes, felt makers, 80 West st. New York.
Higgins Charles M., patent solicitor, 10 Spruce st. New York.
Higgs Electric Light & Power Co. New York.
Higgs Paget, electrician, 63 Kent st. Brooklyn.
Hill & Church, patent solicitors, 617 7th st. Washington, D. C.
Hill & Dixon, patent solicitors, 40 Dearborn st. Chicago, Ills.
Hill & Jordan, agent for Brush Electric Co., Columbus, Ga.
Hill C. C. mechanical engineer, 80 Market st. San Francisco, Cal.
Hill E. A., electrician, Chicago, Ills.
Hill Eusebia M., electrician, 300 W. 31st st. New York.
Hill Richard, turner, 182 Centre st. New York.
Hill W. C., patent solicitor, 530 9th st. Washington, D. C.
Hillier's R. Son & Co., drug manufacturers, 46 Cedar st. New York.
Hillmann J. J., gold and plain plater, 24 Sudbury st. Boston.
Hindermeyer J. & Son, brass founders, Philadelphia.
Hinds Charles H., electrician, 418 W. 27th st. New York.
Hinrichs Charles F. A., electrolier & chandelier manufacturer, 31 Park pl. New York.
Hirsh Joseph M., electrical supplies, Chicago, Ill.
Hirsh Leon, chemical manufacturer, 78 Thomas st. New York.
Hirt Henry, zinc manufacturer, 279 avenue, B. New York.
Hiscox & Co., manufacturing chemists, 163 William st. New York.
Hitchcock Lamp Co., electrolier and chandelier manufactory, 59 Murray st. New York.
Hitchings & Co., boiler (anti-fouling) makers, 233 Mercer st. New York.
Hoagland Theodore B. chemical manufacturer, 91 Maiden lane, New York.
Hoare John, glass cutter, 34 Church st. New York.
Hobart A. H. general plater, 49 Pick st. Providence, Rhode Island.
Hobart D. J. telegraph supplies, room 37, 209 Washington st. Boston, Mass.
Hobbs R. H. electrotyper, Hartford, Conn.
HOCKHAUSEN W. electrician, New York.
Hodgkiss Geo. gutta percha manufacturer, 66 Boemm st. Brooklyn, New York.
Hodgson John S. designer and draughtsman, 14 John st. New York.
Hoe R. & Co. electrotypers, 504 Grand st. New York.
Hoecker J. B. optician, 312 Fulton st. Brooklyn, New York.
Hœnack C. P. electrician, New York.
Hœnack Paul, electrical instrument manufacturer, 193 Worth st. New York.
Hœvenbergh H. Van, electrician, Elizabeth, New Jersey.
Hofmann Jacob, turner, White c Centre st. New York.
Hoffhelms R. patent solicitor, York, Pa.
Hoffmann & Stader, wire workers, 819 Third avenue, New York.
Hoffman Anton A. pattern maker, r 234 Broome st. New York.
Hoffmann Louis C. mathematical instrument maker, 13 Broadway, New York.
Hogan & Son, importer of steel, 59 Beekman st. New York.
Hogg Andrew H. electrolier and chandelier manufacturer, 11 Murray st. New York.
Hohlweck George, wire worker, 219 Brewery & 167 Chrystie st. New York.
Hoight R. general plater, Louisville, Kentucky.
Holcomb J. R. & Co. telephone apparatus makers, Atwater bldgs. Cleveland, Ohio.
Holcomb A. G. electrician, Danielsonville, Ct.
Holder and Kerrick, copper manufacturers, 123 Milk st. Boston, Mass.
Holland, John, Iridium Smelting Co. Cincinnati, Ohio.
Hollander Oscar, glass cutter, 210 Canal st. New York.
Hollingshead James H. electrotyper, 118 William st. New York.
Holloway & Blanchard, patent solicitors, 608 F. st. Washington, D. C.
Holmes, Booth & Haydens, brass and copper manufacturers, 49 Chambers, New York.
Holmes Burglar Alarm Telegraph Co. 518 Broadway, New York, hotel annunciators, call bells, &c. the first and original burglar alarm. Seventeen years' experience.
Holmes & Carry, nickel platers, 88 John st. New York.
Holmes E. T. & Co. electric alarm manufacturers, 342 Washington st. Boston, Mass.
Holmes & Wessell Metal Co. brass and copper manufacturers, 525 W. 24th st. New York.
Holmes J. F. lightning rod manufacturer, 81 Cranston st. Providence, R. I.
Holt A. & Co. general platers, 9 Calendar st. Providence, R. I.

Digitized by Google

Holt A. J. electrician, Gd. Rapids, Michigan.
Holt, Thomas E. wood engraver, 114 Nassau st. New York.
Holton F. A. manufacturer of india rubber goods, 1 Adams st. Brooklyn.
Holtzer C. W. electrical instrument manufacturer, Brookline, Boston, Mass.
Homan & Co. general platers, 12 E. 7th st. Cincinnati, Ohio.
Homing J. brass goods manufacturer, 1368 Dekalbar st. Brooklyn.
Hondlette F. A. & Co. iron pipe manufacturers, 19 Batterymarch st. Boston, Mass.
Hood H. P. patent solicitor, 94 S. Delaware st. Indianapolis, Ind.
Hooks Smelting Co. brass founders, cor. Broad and Hamilton sts. Philadelphia.
Hoopes & Merry, galvanizers, 539 W. 13th st. New York.
Hoover J. & Son, iron pipe manufacturers, Norristown, Pa.
Hopfensack Ernst. metal spinners, 34 S. 5th avenue, New York.
Hopkins & Co. wire workers, 90 W. Broadway, New York.
Hopkins Livingstone, designer and draughtsman, 116 Nassau st. New York.
Hopkins' New York Steam Wire Works, brass wire cloth manufacturers, 90 W. Broadway, New York.
Hopkins, G. M. electrician, New York.
Hopkins Stephen T. metal broker, 240 Pearl st. New York.
Holmes J. W. silver plater, cor. Henry and Orange sts. Brooklyn, New York.
Hornberger Jacob, glass cutter, 124 Baxter st. New York.
Horning John, brass founder, 1368 Dekalbar st. Brooklyn.
Horrocks Joshua, wire worker, 45 Cliff st. New York.
Holt J. gold and plain plater, 55½ Sudbury st. Boston.
Hosea L. M. patent solicitor, 10 Pike's Opera bldgs. Cincinnati, Ohio.
Hoster Theodore G. mechanical engineer, 261 Broadway New York.
Hotchkiss & Gaylord, screw manufacturers, Cleveland, Ohio.
Hotchkiss Clark B. telegraph supplies, 120 Broadway, New York.
Hotchkiss Guy C., Field & Co. bolt manufacturers, 624 E. 14th st. New York.
Hotchkiss J. F. boiler cleaner (mechanical), 14 John st. New York.
Houchin Manufacturing Co. electric light fixture makers, 43 Chamber st. New York.
Houghton & Co. anti-fouling boiler compound makers, 130 Reade st. New York.
Houghton & Co. anti-fouling boiler compound makers, 15 Hudson st. New York.
HOUGHTON MIFFLIN & CO. publishers of electrical periodicals, Boston, Mass.
Houghton C. patent solicitor, 28 State st. Boston, Mass.
Houghton T. patent solicitor, 1333 4½th st. Washington, D. C.
Hourigan Patrick, brass founder, 11½ James slip, New York.
Houston Thos. Electric Light Co. 631 Arch, Philadelphia.
Houston D. & Co. metal brokers, 62 William st. New York.
HOUSTON E. J. electrician, Philadelphia, Pa.
Houston William, metal broker, 71 William st. New York.
How J. H. nickel plater, 256 W. 28th st. New York.
Howard & Co. patent solicitors, 810 F. st. Washington, D. C.
Howard & Morse, brass wire cloth manufacturers, 45 Fulton st. New York.
Howard & Morse, wire manufacturers, 1197 Dekalb avenue, Brooklyn.
Howard G. H. & W. T. patent solicitors, 707 G. st. Washington, D. C.
Howard G. H. & W. I. mechanical engineers, 2nd cor. Halliday st. Baltimore.
Howard G. & W. T. patent solicitors, 20 cor. Halliday st. Baltimore, Md.
Howard Edward, cotton waste manufacturer, 147 Duane st. New York.
Howard G. C. manufacturer of shaftings, pulleys, etc. 6 Cortlandt st. N. Y. & 1755 Baker st. Philadelphia.
Howe & Chandler, mechanical engineers, 7, Exchange place, Boston, Mass.
Howe Lard Oil Co. 159 Front st. New York.
Howell E. F. etectrician, 195 Broadway, New York.
Howell William P. powder manufacturer, 205 Front st. New York.
Howser G. W. electrician, Chicago, Ills.
Howson & Sons, patent solicitors, 119 S. 4th st. Philadelphia, Pa.
Howson & Sons, patent solicitors, 605 7th st. Washington, D. C.
Hoxsey Thomas H. patent agent, 34 Pine st. New York.
Hoy Michael, tallow dealer, 129 W. 37th st. New York.
Hoyt J. B. & Co. leather belting manufacturer, 28 Spruce st. New York.
Hoyt Albert C. manufacturer of printing ink for telegraphs, 25 Rose st. New York.
Hoyt W. H. electrician, 195 Broadway, New York.
Hubbard Abraham, manufacturing chemist, 338 E. 14th st. New York.
Hubbard Charles, importer of steel, 46 Cliff st. New York.
Hubbard Charles W. electrical supplies, Boston, Mass.
Hubbe Martin, mechanical engineer, 198 Broadway, New York.
Hubert Baptist, brass finisher, 174 Worth st. New York.

Digitized by Google

Hudson J. E. electrician, 95 Milk st. Boston, Mass.
Huff & Brainard, electrolier & chandelier manufacturer, 224 Sixth avenue, New York.
Hughes Edward, metal dealer, 223 Lewis st. New York.
Hughes John, anti-fouling boiler maker, 105 E. 131st st. New York.
Humans W. electrician, Cambridgeport, Mass.
Humboldt Library of Science (m.), Fitzgerald & Co. 30 Lafayette place, New York.
Hummel William, glass manufacturer, 75 First avenue, New York.
Hunt Thomas G. oil merchant, 137 Front st. New York.
Hunt W. T. D. electrician, N. Britain, Ct.
Hunter & Dickson, iron pipe manufacturers, 245 Arch st. Philadelphia.
Hunter, Keller & Co. iron pipe manufacturers, 142 Centre and 117 Walker st. New York.
Hunter Hugh W. patent solicitor, 1132 Broadway, New York.
Huntley S. J. nickel plater, 22 Frankfort st. New York.
Hurd Robert B. chemical manufacturer, 2 Leonard st. New York.
Hurdle James, designer and draughtsman, r 6 Tribun buildings, Ivy st. New York.
Hurst Charles, electrotyper, 113 Nassau street, New York.
Hurston John, electrician, New York.
Hussey Electric Co. New York.
Hussey C. A. electrician, New York.
Hutte Spencer & Co. electrotypers, 83 Jackson st. Chicago.
Huwer J. N. glass manufacturer cor. Manjor and Morgan avenue, Brooklyn.
Hyatt W. L. brass goods manufacturer, 254 State st. Brooklyn.
Hyde Joseph, brass finisher, 1368 Broadway, New York.

I.

Iden & Co. electric light fixture makers, 194 Hester st. New York.
Ill John, brass founder, r 201 Wooster st. New York.
Illinois Zinc Co. Peru, Ills.
International Ocean, telegraph company, 195 and 197 Broadway, New York.
Inventors Institute agency for the sale of patents, 28 Cooper Union st. New York.
Iowa Barb Wire Co. 99 John st. New York.
Iowa State Register, electrotypers, Des Moines st. New York.
Irsch Francis, electrical instrument manufacturer, 204 E. 23rd st. New York.
Irwin J. H. electrician, Morton, Pa.
Ithaca Telephone Exchange, Ithaca, New York.
Ives Wm. Jay, metal broker, 52 Broad st. New York.

J.

Jablochkoff Electric Lighting Co. 154 Nassau st. New York.
Jack J. C. electrical instrument manufacturer, 18 Mar[illegible]ot st. San Francisco, Cal.
Jackson Manufacturing Co. telegraph supplies, Harrisburg, Pa.
Jackson Francis D. nickel plater, 158 W. 27th st. New York.
Jacobus Edmund Y. importers of steel, 50 Beekman st. New York.
Jacobus H. S. general plater, Wilmington, Del.
Jamer, Jacobs & Co. iron pipe manufacturers, 84 John st. New York.
James E. patent solicitor, 639 F. st. Washington, D. C.
Jamison Bros. electrotypers, 92 Diamond st. Pittsburgh, Pa.
Jansen Jno. wire manufacturer, 497 Court st. Brooklyn, New York.
Jansen J. L. pottery for porous cups, 144 Green st. Brooklyn, New York.
Jassand F. wire manufacturer, 453 Scoville avenue, Cleveland, Ohio.
Jaudon Charles, designer and draughtsman, 48 Beekman st. New York.
Jay James M. pattern maker, r. 43 Centre st. New York.
Jcoup F. W. & Co. cotton waste manufacturers, 67 Liberty st. New York.
Jenkins P. O. electrician, Washington, D. C.
Jenkinson James W. wood engraver, 34 Park row, New York.
Jenks L. P. patent solicitor, 252 Washington st. Boston, Mass.
Jenney C. D. electrician, To Bend, Ind.
Jennings C. C. electrician, Buffalo, New York.
Jennings H. J. general plater, Worcester, Mass.
Jerome Kidder Manufacturing Co. medical battery manufacturers, 820 Broadway, New York.

Digitized by Google

Jersey City Galvanizing Co. 98 John st. New York.
Jewel, Harrison & Co. oil merchants, 27 Water st. New York.
Jilton M. anti-fouling boiler compound maker, 506 Greenwich st. New York.
Jochum & Jetter, coppersmiths, 148 E. 50th st. New York.
John F. general plater, 506 Race st. Philadelphia, Pa.
Johns H. W. Boiler and Pipe Covering Manufacturing Co. 87 Maiden lane, New York. **Sole manufacturers of genuine asbestos cement felting and air chamber coverings.**
Johnson Bros. & Co. wood engravers, 35 Ann st. New York.
Johnson Charles Eneu & Co. manufacturers of printing inks for telegraphs, 45 Rose st. New York.
Johnson E. W. & Co. patent solicitors, 510 F st. Washington, D. C. and 23 Gouth st. Baltimore, M. D.
Johnson & Johnson, patent solicitors, 639 F st. Washington, D. C.
Johnson & Schule, general platers, 5 Post st. San Francisco, Cal.
Johnson & Wilson, boiler cleaners, 91 Liberty st. New York.
Johnson E. H. electrician, 65 Fifth avenue, New York.
Johnson J. B. telegraph supplies, 50 Bromfield st. Boston, Mass.
Johnson Lytle W. wood engraver, 96 Fulton st. New York.
Johnson T. optician, 227 Fulton st. Brooklyn, New York.
Johnson W. H. telegraph supplies, Louisville, Ky.
Johnston Wm. G. & Co. electrotypers, 231 Liberty st. Pittsburgh, Pa.
Johnston A. C. patent solicitor, Penn avenue and 6th st. Pittsburg, Pa.
Johnston J. J. patent solicitor, Penn avenue and 6th st. Pittsburgh, Pa.
Jones C. E. & Bro. telegraph supplies, Carlisle building, Ohio.
Jones & Peters, nickel platers, 106 W. 37th st. New York.
Jones Chas. H. nickel plater, 43 Gold st. New York.
Jones E. S. patent solicitor, 164 Westminster st. Providence, R. I.
Jones F. W. electrical engineer, 9 Bond st. New York.
Jones Thomas, glass cutter, Franklin c. Centre st. New York.
Joot Edmund, brass founder, 320 Market st. Newark, New Jersey.
Jost Edmund, model maker, 320 Market st. Newark, New Jersey.
Journal of Commerce (w.). Boston.
Journal of the Franklin Institute (m.), Phila.
Journal of Science, Adams John G. Chicago, editor.
Journal of the Society of Arts (m.) New Haven, Conn.
Journal of the Telegraph, The, published by the W. U. T. Co. 195 Broadway, New York.
Joyce & Cridland, screw manufacturers, Dayton, Ohio.
Judah Charles S. electrician, 154 Nassau st. New York.
Judson H. screw manufacturer, 9 Alling st. Newark, New Jersey.
Juengling Fred. & Co. wood engravers, 220 E. 48th st. New York.
Jungblait, Hendricks & Co. electrotypers, 154 Clark st. Chicago.

K.

Kabus Robert, patent solicitor, 376, Bowery st, New York.
Kahl A. & Co., electrical instrument manufacturers, 13 Mercer st. Balt, Md.
Kahl G. & Son, manufacturer of india rubber goods, 37 Broadway, Brooklyn.
Kahn Brothers, metal dealers, 246 Water st. New York.
Kahn, Hanover & Co. patent solicitors, 32 Maiden lane, New York.
Kalb Emil, turner, 88 Clinton st. New York.
Kalbfleisch's Martim, Sons, chemical manufacturers, 55 Fulton st. New York.
Kaldenberg F. Julius, turner, 125 Fulton st. New York.
Kaplan Harris, coppersmith, 13 Essex st. New York.
Karr J. electrician, 832 Broadway, new York.
Karst John, wood engraver, 300 Canal st. New York.
Kaschau J. Bros. & Co., nickel platers, 138 Centre st. New York.
Katz Ferdinand, metal dealer, 345 6th st. New York.
Katz Isaac, glass shade maker and dealer, 535 E. 11th st. New York.
Kay J. F. patent solicitor, 138 Fifth avenue, Pittsburgh, Pa.
Kaynor Hiram M. electrical instrument manufacturer, 25 Bond st. New York,
Kearney & Foot, file makers, 101 Chambers st. New York.
Keim John H. electrical instrument manufacturer, 192 Broadway, New York.
Keith B. & Company, manufacturing chemists, 41 Liberty st. New York.
Keith N. T. electrician, 41 Liberty st. New York.
Kelley Cornelius, A. steam packing manufacturer, 21 Ann st. New York.
Kellogg M. G. electrician, Hyde park, Ills.

Digitized by Google

Kelly J. R. F. electrician, Brooklyn, New York.
Kelly Thomas, electrician, Boston, Mass.
Kendall Joseph R. glass manufacturer, 38, Park pl. New York.
Kennedy Daniel, pattern maker, 4 Gold st. New York.
Kennedy R. C. patent solicitor, 339 Sixth avenue, New York.
Kennedy, T. G. electrician, 195 Broadway, New York.
Kenney, R. D. designer and draughtsman, 30th and Chestnut sts, Philadelphia, Pa.
Kent Edward G. chemical manufacturer, 20 Liberty st. New York.
Kent Edward N. writing ink manufacturer, 116 John street, New York.
Kenton Wire Works, Covington, Ky.
Kenton, Charles, dealer in (crude) rubber, 229 Broadway, New York.
Kenzel John S. manufacturing chemist, 15 New Chambers, New York.
Ker W. W. & Co., manufacturing chemists, 113 Reade street, New York.
Kerner Burglar Alarm Company, telegraph supplies, 59 Liberty street, New York.
Keteham & McDougall, patent solicitors, 4 Liberty pl. New York.
Ketchun & Wanamaker, electrotypers, Indianapolis.
Kettell J. F. electrician, Worcester, Mass.
Keuffel & Esser, mathematical instrument makers, 127 Fulton and 42 Ann sts. New York.
Keune August, brass finisher, Franlin n Centre st. New York.
Keystone Screw Company, 17 Fenango st. Philadelphia Pa.
Kidd E. & Co. wire manufacturers, Worcester, Mass.
KIDDER JEROME, MANUFACTURING CO. electrical instrument manfs. 820 Broadway New York.
Kiernan's Telegraph News Agency of London stocks, New York.
Kinch T. G. electrician, Albany st. New York.
King G. W. & Co. wire mauufacturers, 482 N. 3rd ft. Philadelphia Pa.
King I. electrician, Ansonia, Ct.
King J. B. electrician, Brooklyn, New York.
King Leroy J. manufacturing chemist, 16 Dey st. New York.
Kingman Eugene, designer and draughtsman, 34 Park row New York.
Kinn, Frederick, brass finisher, 5 Centre market place, New York.
Kinsley J. R. general plater, 69 W. 6th st. Cincinnati, Ohio.
Kinsman F. E. & Co. telegraph and telephone supplies, 145 Broadway and 86 Liberty st. New York
Kinsman, Gundy & Perry, zinc manufacturers, La Salle, Ills.
Kirchner F. glass manufacturer, 53 Deimoures pl. Brooklyn.
Kirkup W. & Son, iron pipe manufacturers, Pearl and Ludlow sts, Cincinnati, Ohio.
Kitchen George H. & Co. electric light fixture makers, 23 University pl. New York.
Kitee Isidor, electrician, Cincinnati, Ohio.
Kleb George, brass finisher, r 101 S. 5th avenue, New York.
Kleeman & Sheehan, wire workers, 296 E. 29th st. New York.
Kleine Charles B. patent solicitor, 274 8th avenue, New York.
Klipstein August, chemical manufacturer, 59 Cedar st. New York.
Kloman Andrew, importer of steel, Pittsburgh, Pa.
Klotz Frederick & Co. wire workers, 124 Prince st. New York.
Kluppel Jacob C. turner, 216 Centre st. New York.
Knapp Manufacturing Co. electrolier and chandalier manufacturers, 24 Frankfort st. New York.
Knapp John H. brass tube maker, r 17 John st. New York.
Kneeland Furman L. powder manufacturer, 87 Bever st. New York.
Knehnhold F. B. & Co. gold & silver plater, 303 N. J. R. R. avenue, Newark, New Jersey.
Knell George, wood engraver, 34 Park row, New York.
Knight Bros. patent solicitors, F st. Washington, D. C.
Knight Bros. patent solicitors, 317 Olive st. St. Louis, Mo.
Knight J. K. & Co. electric light engineers, 1571 Broadway, New York.
Knowles Fred. C. coppersmith, 35 Desbrosses st. New York.
Kundson Adolphus A. patent agent, 39 Nassau st. New York.
KNUDSON ELECTRIC CO. LIMITED, 39 Nassau st. New York.
Knoch & Adenauer, brass finishers, r 213 Grand st. New York.
Kock, C. L. patent solicitor, 23 Gouth st. Boston, Mass.
Koevoets H. & C. wood engravers, 183 Broadway, New York.
Konantz W. A. copper scroll lightning rod manufacturer, Quiney, Ills.
Korner G. brass founder, cor. Hope & 9th sts, E. D., Brooklyn.
Coster Charles H. calcium lights, 17 Park pl. New York.
Krackowizer St. & Harnish, analytical chemists, 113, Water st. New York.
Kraemer William, turner, Courtland avenue, n 148th st. New York.
Kraft Charles H. manufacturing chemist, 55 Fulton st. New York.
Kraft Henry de, Dr. M.D. manfr. of magnetic curative appliances, 467 avenue, New York (above 40th st.)

Digitized by Google

Krajewski Thomas F. mechanical engineer, 35 Broadway, New York.
Kremer J. zinc manufacturer, 25 Jesse st. San Francisco.
Kreuter Ferdinand, patent solicitor, 166 E. Houston st. New York.
Kriete John, charcoal maker and dealer, 436 E. 75th st. New York.
Kroder John, turner, 11 Baker st. New York.
Kroedel Franz, mathematical instrument maker, 52 Nassau st. New York.
Kroger F. & Co., general platers, 13 Trinity st. San Francisco, Cala.
Krom Stephen R. mechanical engineer, 93 Washington st. New York.
Kroupa Richard J. analytical chemist, 506 6th st. New York.
Krous L, nickel plater, 217 Centre st. New York.
Kruegar L. babbit metal maker, 515 Commercial st. San Francisco, Cal.
Kruger & Kruse, metal spinner, 209 Centre st. New York.
Kuh Emanuel S. bone dealer, 67 Pearl st. New York.
Kundson A. A. electrician, 39 Nassau st. New York.
Kurczyn Pedro, Rio de Janeiro, Brazil, care W. R. Cassels & Co. Caixa 95.

L.

La Bastie Works, glass manufacturers, cor. Delevan and Van Brunt, Brooklyn, New York.
Lacey G. S. & Co. electric light fixture makers, 1293 Broadway, New York.
Lacey R. S. & A. P. patent solicitors, 604 F. st. Washington, D. C.
Laflin & Rand Powder Co. electric blasting apparatus, 29th Murray st. New York.
Laforme V. gold and plain plater, 23 water st. Boston.
Lake Manufacturing Co. general platers, Waterbury, Conn.
Lake S. D. J. electrician, City, New Jersey.
Lakin J. A. electrician, Westfield, Mass.
Laland, H. W. electrician, So. Framingham, Mass.
Lamb H. wire manufacturer, Northampton, Mass.
Lamers & Bro. wire manufacturers, 461, St. Clair st. Cleveland, Ohio.
Lamson John S. & Brother, manganese merchants, 77, Maiden lane, New York.
Lancaster J. H. designer and draughtsman, 205, Broadway and 95, Liberty st. New York.
Lancaster Joseph R. pattern maker, 244 Water st. New York.
Lander Benjamin, designer and draughtsman, 14 John st. New York.
Landers Edmund, brass finisher, 12, Jacob st. New York.
Landy T. J. electrician, 195 Broadway, New York.
Lane Loring, electrolier and chandelier manufacturer, 81 Murray st. New York.
Lane T. A. electrician, Boston, Mass.
Lanfersweiler Frank, pottery (for porous cups) 519 W. 27th st. New York.
Lang C. general plater, 55 E. Seneca-st. Buffalo, New York.
Langford J. T. iron pipe manufacturer, 40 Mason buildings, Boston, Mass.
Langley Electric Light Co. Ann Arbor. Mich.
Langridge, James L. wood engraver, 22 Duane st. New York.
Lannert J. A. electrical instrument manufacturer, 31 Prospect st. Cleveland, Ohio.
Large J. T. & Son, mathematical instrument makers, 118 Powers st. Brooklyn, New York.
Large R. general plater, 68, N. Howard st., Baltimore, Md.
Larish J. W. electrician, Buffalo, New York.
Laurencot Jos. B. patent solicitor, 33 Maiden la. New York.
Laurent John V. glass cutter, White n Elm st. New York.
Law Telegraph Co. 140 Fulton, County C. H. & 37 P. O. bldg. New York.
Law Telegraph Co., battery manufacturers, 140 Fulton st. New York.
Law Edward M. designer and draughtsman, 14 John st. New York.
Law S. C. telegraphic code ciphers, 30 & 32 Cedar st. New York.
Lawler W. general plater, 622 Clay st. San Francisco, Cala.
Lawson G. W. electrician, Brooklyn, New York.
Lay J. & Co. wire manufacturers, Olmsted Falls, Ohio.
Lazelle & Walker, electricians, 174 Centre st. New York.
Leak Thomas D. writing ink manufacturers, 378, Bleecker st. New York.
Lealy W. J. electrician, 195 Broadway, New York.
Leary E. general plater, 13 Church st. St. Louis, Mo.
Leavenworth F. C. general plater, New Haven, Conn.
Leavitt John W. electrician, 76 Wall & 118 E. 52nd st. New York.
Lebel E. glass manufacturer, 54 Barclay st. New York.
Lechter A. lightning rod manufacturer, Lancaster, Pa.
Leclanché Battery Co. electrical supplies, 149th West 18th st. New York.

Digitized by Google

Lederer G. M. & Co. general platers, 731 Mission st. San Francisco, Cala.
Ledoux & Ricketts, analytical chemist, 10 Cedar st. New York.
Lee James & Co. chemical manufacturers, 72 Pine st. New York.
Leeds Lewis W. mechanical engineer, 33 Broadway, New York.
Lefferts, Marshall & Co. galvanized wire manufacturers, 90 Beekman and 495, Cherry sts. New York.
Leggatt & Bro. scientific booksellers, Chambers st. New York.
Leggett & Leggett, patent solicitors, 607 7th st. Washington D. C.
Leggett W. W. 88 Griswold st. Detroit, Mich. Agent for Brush electric Co.
Leggo Bros. photographic engravers, 39 Park row, New York.
Lehigh Co. zinc manufacturers, Bethlehem, Pa.
Lehigh Zinc Co. zinc manufacturers, 333 Walnut st. Philadelphia, Pa.
Lehigh Zinc & Iron Co. Limited, zinc manufacturers, 13 Platt st. New York.
Lehmaier, Schwartz & Co., tin foil manufacturers, 501 First avenue, New York.
Lehman F. A. patent solicitor, 517 7th st. Washington, D. C.
Lehman T. F. patent solicitor, 50 6th avenue, Pittsburgh, Pa.
Lelanche Battery Co. electrical instrument manufacturers, 149 W. 18th st. New York.
Lelong L. & Brother, assayers, South West Corner, Halsey and Marshall sts. Newark, New Jersey.
Leman, B. B. & Co. metal brokers, 64 Wall st. New York.
Le Mon James, mechanical engineer, 103 E. 9th st. New York.
Lennox J. G. electrotyper, Rochester, New York.
Leonard & McCoy, steam engine makers, 118 Liberty st. New York.
Leonard Orville W. steam packing manufacturer, 36, John st. New York.
Leroy Shot & Lead Manufacturing Co. lead pipe manufacturers, 261 Water st. and 607, Sixth avenue, New York, with McShane.
Lesemann Henry, brass finisher, 97 Elizabeth, New York.
Leslie Edward A. electrician, 135 Broadway, New York.
Leuschner E. electrical instrument manufacturer, 189 Vine st. Cincinnatti, Ohio.
Levett Muller Electric Light Co. 1003 Chestnut street, Philadelphia.
Levett & Muller, telegraph supplies, 540 W. 16th st. New York.
Levey Fred. H. & Co. manufacturers of printing inks for telegraphs, 122 Fulton st. New York.
Levison Wallace Gould, electrician, 115 Nassau st. New York.
Levy, Dreyfus & Co. patent solicitors, 11 Maiden lane, New York.
Levy Albert, chemical paper manufacturer, 4, Bond st. New York. Positive Ferro Prussiate Paper (Cl. J's patent) giving dark blue lines on pure white background on first impression.
Levyson L. optician, 160 Grayham avenue, Brooklyn, New York.
Levytype Co. photographic engravers, 7th and Chestnut sts. Philadelphia.
Lewis Chemical Co. writing ink manufacturers, 19 Dey st. New York.
Lewis Foundry & Machine Co. steam engine makers, 10 corner Neville st. Pittsburgh, Pa.
Lewis Photographic Engraving Co. 37 Hanison avenue, Boston, Mass.
Lewis O. D. patent solicitor, 131 5th avenue, Pittsburgh, Pa.
Lewis Wm. T. general plater, 165 Eddy st. Providence, R. I.
Lewison Isidor, indigo importer, 570 Grand st. New York.
Library, The, scientific booksellers, Chambers st. New York.
Liddy & Potts Brothers, glass cutters, 60 Duane st. New York.
Light & Force Co. telegraph supplies, 234 Broadway st. New York.
Lightbody John G. & Co. manufacturer of printing ink for telegraphs, 24 Beekman and 345 E. 61st sts. New York.
Lilly Chas. H. lightning rod manufacturer, 19 Hudson st. New York.
Lincoln S. T. & Co. general platers, 12 Page st. Providence, Pa. R. I.
Lindeman & Rieke, turners, 147 Baxter st. New York.
Lindsay J. N. & Co. gold and plain platers, 237 Washington st. Boston.
Linton H. electrician, Alleghany, Pa.
Lissberger Abraham K. metal dealer, 521 E. 19th st. New York.
Lister Brothers, bone black manufacturers, 159 Front st. New York.
Littell William D. wood engraver, 96 Chambers st. New York.
Litterst Alexander, file maker, r 224 E. 81st st. New York.
Little J. J. & Co. electrotypers, Astor place, New York.
Little G. electrician, Passaic, New Jersey.
Littlefield W. D. electrician, South Springfield, Mo.
L. J. Wire & Iron Works, 349 Adam st. Brooklyn.
Loane Hy. E. electrician, Baltimore, Md.
Locke J. A. & Son, felt makers, 40 Cortlandt st. New York.
Lockmead W. H. electrotyper, Hartford, Conn.
Lockwood Manufacturing Co. steam engine makers, 79 Summer st. Boston, Mass.
Lockwood H. T. & Brother, metal brokers, 54 Cliff st. New York.

Digitized by Google

Lockwood R. M. & Son, electricians, 22 New Church st. New York.
Lockwood T. D. electrician, American Bell Telephone Co. Boston, Mass.
Lockwood Thomas D. electrical engineer, 95 Milk st. Boston, Mass.
Lockwood Wm. C. electrician, Brooklyn, New York.
Locock L. pottery (of porous cups), 255 Wallabout st. Brooklyn.
Locomotive Engine Safety Truck Co. steam engine makers, 46 Cortlandt st. New York.
Lodi Chemical Works, 38 Platt st. New York.
Loeb Leopold, patent solicitor, 2182 2nd avenue, New York.
Loewenthal Gustavus C. wood engraver, 39 Ann st. New York.
Logan M. E. metal broker, 402 Water st. New York.
Lohouse A. F. electrotyper, 14 E. Swan st. Buffalo, New York.
Lohse & Borger, turners, 50 Ann st. New York.
Lombard N. C. patent solicitor, 40 State st. Boston, Mass.
London & Manchester Plate Glass Co. Limited, 94 Maiden lane, New York. J. A. Walker, agent.
Lone & Bodley Co. steam engine makers, corner John and Water sts. Cincinnati, Ohio.
Long D. & Co. iron pipe manufacturers, Louisville, Ky.
Long Island Telephone Co. 379 Fulton, Brooklyn, New York.
Long W. brass goods manufacturer, 136 1st E. D. Brooklyn.
Longstreet John H. electrical instrument manufacturer, 9, Barclay st. New York.
Longstreet J. H. electrician, Hoboken, New Jersey.
Lonsdat A. Many, glass manufacturer, cor. Wallabout st. Brooklyn.
Lotz W. H. patent solicitor, 95 5th avenue, Chicago, Ills.
Loughry William P. iron pipe manufacturer, 16, Cliff st. New York.
Lounds John H. electrlcian, 138 E. 28th st. New York.
Louric, Shurmer & Massey, general platers, 20 Centre st. Cleveland, Ohio.
Love Edward G. analytical chemist, 122 Bowery st. New York.
Love John J. steam engine maker, 213 Centre st. New York.
Lovejoy, Son & Co. electrotypers, 17, Vandewater st. New York.
Lovell F. H. & Co. electrolier and chandelier manufacturers, 118 John st. New York.
Lovezzo John & Brother, turners, 117 Prince st. New York.
Lovitt J. general plater 10 Weybossit st. Providence, R. I.
Low J. B. electrician, Pulaski, New York.
Lowe T. H. & Son, general platers, 107 Dorrance st. Providence, R. I.
Lowell C. H. & Co. gold and plain platers, 548 Washington st. Boston.
Lowrey J. metal worker, 26 Frost st. Brooklyn, New York.
Lucas A. H. glass manufacturer, 79 Adams st. Brooklyn, New York.
Luckstone Charles S. patent solicitor, 32 Beekman place, New York.
Ludlow Taylor Wire Co. 219 Market st. St. Louis, Mo.
Lugo Dynamo Electric Co., Washington square, New York.
Luigo Oriazio, chemical manufacturer, 4 University building, New York.
Lukanitsch Michael, file maker, 351 Broome st. New York.
Lum William H. glass cutter, 46 Murray st. New York.
Lundy T. general plater, 7 3rd st. San Francisco, Cala.
Lund A. G. zinc manufacturer, 98 N. Wells st. Chicago, Ills.
Lüngen A. electrician, New York.
Lusk William, wood engraver, 7 Murray st. New York.
Lyles & Gilson, machine manufacturers, 104 John st. New York.
Lyman & Schorndorfer, electrical instrument manufacturers, 36 So. Water st. Cleveland, Ohio
Lyman & Twill, general platers, Clinton, Mass.
Lyman A. B. telegraph instrument maker, 36 South Water st. Cleveland, Ohio.
Lymans N. Sons, electrotypers, 36 W. Seneca st. Buffalo, New York.
Lynch M. C. & Co. manufacturers of printing ink for telegraphs, 169 William st. New York.
Lynch Mary E. glass shade maker and dealer, 376 Bowery st. New York.
Lyons & Ely, charcoal makers and dealers, Peoria st. Ills.
Lyons Honore B. steam engine maker, 45 Cortlandt st. New York.
Lytle H. B. electrician, Boston, Mass.

M.

Maas & Waldstein, manufacturing chemists. Sugar colour, wood alcohol, cyanite potassium speciality, 81 G'wich st. New York.
Mac Farren Levy & Co. screw manufacturers, Indianna & Laselle, Chicago.
Mackenzie George, turner, ft. E. 125th st. New York.
Mackey George D. metal dealer, 201 William st. New York.
Macy's Josiah & Sons, oil merchants, 189 Front st. New York.

Digitized by Google

Maguire Patrick M. J. mechanical engineer, 245 E. 111th st. New York.
Mahady G. W. silver plater, 47 Lafayatte st. Brooklyn New York.
Mahon A. patent solicitor, 637 F st. Washington, D. C.
Mahoney J. & P. brass finishers, 213 Grand st. New York.
Mahoney J. A. electririan, Washington, D. C.
Mahtey & Riotte, metal dealers, 104 Washn. st. New York.
Maillefert Benjamin, metal dealer, 45 William st. New York.
Maine Mfg. Co. successors to Swift Mfg. Co. wood, mailing and nested boxes, small wood-work, &c 12 Cortlandt st. New York. J. S. Taylor, agt.
Major William E. patent solicitor, 42 Maiden la. New York.
Malia W. J. electrician, Meeting st. Charleston, S. C.
Mallette Alonzo E. emery and crocus manufacturer, 106 Liberty st. New York.
Mallory, George B. mechanical engineer, 55 Broadway, New York.
Malter, Lind & Co. mechanical engineers, 189 Broadway, New York.
Maltine Mfg. Co. manufacturing chemists, 182 Fulton st. New York.
Mancely J. iron pipe manufacturer, 119 N, 4th st. Philadelphia.
Manhattan Brass Co. brass and copper manufacturers, 475 First avenue, New York.
Manhattan Chemical Co. 276 Pearl st. New York.
Manhattan Dist. Telegraph Co. 35 Vesey st. New York.
Manhattan Packing Mfg. Co. 147 Mulberry st. New York.
Manhattan silver Plate Co. silver plate ware manufactory, 301 E 22nd st. first door E. of 2nd avenue, New York.
Manhatton Agency, agents for the sale of patents, 733 Broadway, New York.
Manly Telegraph Co. 420 Library st. Phila. Pa.
Mann & Co. patent solicitors, 116 W. Balto st. Baltimore, Md.
Manning & Squeer, zinc manufacturers, 113 Liberty st, New York.
Manning, A. C. gas engine manufacturers, 47 Dey st. New York.
Manufacturers Gazette, publishers of electrical periodicals, &c. 259 Washington st. Boston.
Marcellus C. N. & Co. iron pipe manufacturers, 69 Varick st. New York.
March W. C. & Son, general platers, Ware, Mass.
Marchand Charles, manufacturing chemist. Specialities, peroxide of hydrogen and binoxide of baryum, 635 Broadway, New York.
Marder Luse & Co. electrotypers, 139 Munroe st. Chicago.
Markland Electric Light Power Co. 30 Broad st. room 87, New York.
Markland W. H. electrician, Brooklyn, New York.
Marrett Michael, glass cutter, 210 Canal st. New York.
Marsh Richard, writing ink manufacturer, 133 William st. New York.
Marshall & Allen, electrotypers, Indianopolis.
Marshall Robert, brass finisher, r 7 Allen st. New York.
Martell J. general plater, 623 Sacramento st. San Francisco, Cala.
Martin E. H. & Co. felt makers, 163 Pearl st. New York.
Martin Benejah M. brass finisher, 142 Greene st. New York.
Martin Louis, coppersmith, 56 W. Houston st. New York.
Marx M. electrician, 4 East 14th st. New York.
Mason, Fenwick & Lawrence, patent solicitors, 802 F st. Washington, D. C.
Mason Mfg. Co. galvanizers, 717 First avenue, New York.
Mason Volney W. & Co. electrical supplies, Providence, R. I.
Mason W. S. electric alarm manufacturer, Attleborough, Michigan.
Mass. Screw Co. screw manufacturers, Holyoke, Mass.
Massasoft Manufacturing Co. cotton waste manufacturers, 86 Leonard st. New York.
Masson E. E. patent solicitor, 615 7th st. Washington, D. C.
Masten V. M. electrician, Rochester, New York.
Mather's George, Sons, manufacturers of printing ink for telegraphs, 60 John st. New York.
Matthews & Co. belting manufacturers, 92 Church st. New York.
Mathews D. S. D. & Co. electrical instrument manufacturers, 84 5th avenue, Chicago, Ills.
Mathicosen & Hegeler, zinc manufacturers, La Salle, Ills.
Matney W. D. electrician, Harvell, Ills.
Maver William jr. electrician, 195 Broadway, New York.
Maxim Electric Light & Power Co. electrical instrument manufacturers, 617 Arch st. Phila.
Maxim Hiram, electrical engineer, 120 Broadway, New York.
May Henry, brass finisher, 140½ Pitt st. New York.
May S. E. electrolier and chandelier manufacturer, 11 Murray st. New York.
Mayer C. glass manufacturer, 182 N. 8th st. Brooklyn, New York.
Maynard Chemical Co. chemical manufacturers, 424 Washn. st. New York.
Maynard G. C. electrician, Washington, D. C.

Digitized by Google

Mays & Aikman, anti-fouling boiler compound manufacturers, 216 Franklin st. New York
McAllister Thomas H. mineralogist, 49 Nassau st. New York.
McArthur & Son, nickel platers, Erie, Pa.
McBain Thomas A. telegraph supplies, 540 W. 46th st. New York.
McKay G. & Co. electrotypers, 203 Vine st. Cincinnati, Ohio.
Mc Cann Peter, brass finisher, 154 South st. New York.
McCleary F. O. patent solicitor, 509 7th st. Washington, D.C.
McCloud & Crane, screw manufacturers, Worcester, Mass.
McConnell Arthur, charcoal maker and dealer, 60 Sheriff st. New York.
McConnin Michael H. metal broker, 59 William st. New York.
McCracken D. copper manufacturer, Albion-st. New York.
McCulloh C. F. electrician, Baltimore, Md.
McCullough Frank, charcoal maker and dealer, 33 E. Broadway, New York.
McCurdy & Warden, anti-fouling boiler makers, 276 West st. New York.
McDermott John, metal dealer, 126 Mulberry st. New York.
McDevitt W. electrician, Philadelphia, Pa.
McDonagh William & Co. zinc manufacturers, 189 Fron st. New York
McDonald J. H. patent solicitor, 802 F. st. Washington, D. C.
McEnrae W. H. electrician, 195 Broadway, New York.
McFarland J. L. patent solicitor, 517 7th st. Washington, D. C.
McGichan I. S. & Co. mechanical engineers, 169 Broadway, New York.
McGowan J. H. & Co., iron pipe manufacturers, 134 and 141 W. 2nd st. Cincinnati, Ohio
McGraw William, glass cutter, 115 W 33rd st. New York.
McGrew A. F. electrician, San Francisco, Cal.
McHenry & Co. iron pipe manufacturers, 8 E. 4th st. Cincinnati, Ohio.
McHugh H. J. electrical engineer, 62 Artillery st. Quebec, P. Q.
McIlvaine Thomas, designer and draughtsman, 36 Beekman st. New York.
McIntire Jacob N. patent agent, 140 Nassau st. New York.
McIntire W. C. patent solicitor, 513 7th st. Washington, D. C.
McIntyre & Embury, manufacturing chemists, 99 N. Moore st. New York.
McKay Alex. Telegraph Co. (supt. N. F. Telegraph Co.) St. John's, Newfoundland.
McKenna James J. & Brother, brass finishers, 424 E. 23rd and 396 Broome sts. New York.
McKim & Smith, general platers, 413 Locust st. St. Louis, Mo.
McKinley Edward, black lead manufacturer, 90 Crosby st. New York.
McLanthlin G. S. & Co. mechanical engineers, 120 Foulton gr. Boston, Mass.
McMann T. R. & Brother, iron pipe manufacturers, 56 Gold st. New York.
McMurray John, wire manufacturer, 109 John st. New York.
McMurray J. wire manufacturer, 102 N. 2nd st. Brooklyn, New Jersey.
McMurray Robert, wire worker, 178 G'wich st. New York.
McNab & Beldon, felt makers, 96 John st. New York.
McNab & Harling Manufacturing Co. iron pipe manufacturers, 56 John st. New York.
McNamara Michael F. nickel plater, 62 Fulton st. New York.
McNeal A. H. iron pipe manufacturer, Burlington, New Jersey.
McRider James, dealer in india rubber, 138 Water st. New York.
McTighe J. J. electrician, Pittsburgh, Pa.
McVery Alexander, pattern maker, White n Centre sts. New York.
Means C. J. electrician, Boston, Mass.
Mechanical Engineer, E. Watson & Son, 150 Nassau st. (s.m.) New York.
Mechanical Manufacturing Works, 312 17th st. Denver, Colorado; Dey C. E. & Co. proprietors.
Mechanical News (s.m.) James Liffel & Co. 110 Liberty st. New York.
Mechanics (w.) *Iron Age* (w.) published by D. Williams, cor. Reade and Church sts. New York.
Mecke Herman, wire worker, 888 Eighth avenue, New York.
Medinger Eugene F. chronometer maker, 115 Broad st. New York.
Meeder Philip, wood engraver 21 Beekman st. New York.
Melaye Chas. patent solicitor, 80 Nassau st. New York.
Mellort Foundry & Machine Co. iron pipe manufacturers, Reading, Pa.
Menahan J. Franklin, nickel plater, cor. Centre st. New York.
Menden Flint Glass Works, G. Hatch, agent, manufacturers and dealers in electrical glass, Meriden, Conn.
Mengil J. G. jun. electrotyper, St. Paul and Bank sts. New York.
Mensing, J. D. A. electrician, Rochester, New York.
Mercel Joseph, nickel plater, 66 New Church st. New York.
Mercer Zinc Works, Trenton, New Jersey.
Merchant & Co. brass and copper tubing, Cliff c Beekman st. New York (525 Arch st. and 520 Cherry st. Philadelphia.
Merchants' Manufacturing & Construction Co. telegraph supplies, 54 Broad st. New York.

Digitized by Google

Merckling Andrew, pattern maker, 34 S. Fifth avenue, New York.
MERRIAM G. & C. & CO. publishers of electrical periodicals, Springfield, Mass.
Merriam Arthur L. steam engine maker, 38 Cortlandt st. New York.
Merrian & Morgan, Paraffin Wax Co. 32 Oliver st. Boston, Mass.
Meriden Brittania Co. silver plate ware manufacturers, 46 E. 14th st. New York.
Meriden Malleable Iron Co. electrolier and chandelier manufacturers, 42 Park place, and 37 Barclay st. New York.
Meriden Silver Plate Co. 30 E. 14th st. New York.
Merill J. H. patent solicitor, 511 7th st. Washington, D. C.
Merrihew J. Assist. Genl. Supt. West. Union Telegraph Co. New York.
Merrill's Robert & Sons, mathematical instrument makers, 179 Water st. New York.
Merrill Warren M. charcoal maker and dealer, 548 W. 25th st. New York.
Metcalfe George R. designer and draughtsman, 58 Ann st. New York.
Metcalfe Jasper, wood engraver, 254 Broadway, New York.
Metropolitan Electric Light & Power Co. 5 Cortlandt st. New York.
Metropolitan Telephone & Telegraph Co. 195 Broadway, 146 G'wich, 82 Nassau, 97 Spring, 58, 198, 791, 923, 946, 1321 and 1415 Broadway, 38 Whitehall, 35 William and 33 Murray sts. New York.
Mexican Telegraph Co. telegraph supplies, 37 Wall st. New York.
Mexican Telephone Co. 55 Broadway, New York.
Meyer Cust. W. optician, 11 Dey st. near Broadway, New York.
Meyer George F. mechanical engineer, 35 Broad st. New York.
Meyer Herman U. writing ink manufacturer, Av. A. n E. 54th st. New York.
Meyer Peter P. glass cutter, 117 Prince st. New York.
Meyers A. & Sons, patent solicitors, 97 William st. and 303 Fourth avenue, New York.
Meyers F. G. wire manufacturer, Covington, Kentucky.
Meyersberg A. (agent) pottery for porous cups, 32 Warren st. New York.
Meyerscieck M. & Co. zinc manufacturers, Hatmaker, Cincinnati, Ohio.
Meyrowitz Bros. 297 4th avenue, New York.
Miatt George W. designer and draughtsman, Tryon row, New York.
Michels John, electrical supplies, New York.
Middleton & Co. lightning rod manufacturers, 1828 Ridge avenue, Philadelphia, Pa.
Middleton Electric Light Co. Middletown, Ohio.
Middleton Wm. S. metal broker, 52 John st. New York.
Miles F. S. screw manufacturer, 205 Quarry, Philadelphia, Pa.
Miller Bros. patent solicitor, 1213 Broadway, New York.
Miller Edward & Co. electrolier and chandelier manufacturers, 35 Warren st. New York.
Miller & Richmond, electrotypers, 529 Commercial st. Philadelphia, Pa.
Miller A. F. copper scroll lightning rod manufacturer, 1801 Jackson st. St. Louis.
Miller Charles A. designer and draughtsman, 30 Vesey st. New York.
Miller H. general plater, 225 Elm st. Cincinnati, Ohio.
Miller Marks, patent solicitor, 86 Nassau st. New York.
Miller Thomas, brass finisher, 34 W. 3rd st. New York.
Miller T. N. electrician, Chillicothe, Ohio.
Milliken Geo. F. electrician, Boston, Mass.
Mills & Co. electrotypers, Des Moines st. Iowa.
Mills & Lathiop, patent solicitors, 617 Louisiana avenue, Washington, D. C.
Mills Abner B. coppersmith, 127th ayenue, D. N. Y.
Milne J. G. & Co. analytical chemists, 59 Dey st. New York.
Miners' Copper Co. Detroit, Michigan.
Minter H. screw manufacturer, Worcester, Mass.
Missouri Zinc Co. J. M. R. R. Op. Primm.
Mister J. W. patent solicitor, 617 7th st. Washington, D. C.
Mitchell S. J. & Son, copper scroll lightning rod manufacturers, 918 n. 21st st. St. Louis.
Mitchell, Nance & Co. electric light fixture makers, 836 Broadway, 72 E. 13th and 503 W. 24th sts. N. Y.
Mitchell D. nickel plater, Burlington, V. T.
Mitchell D. B. electrician, 195 Broadway, New York.
Mittendorfer Maximilian V. designer and draughtsman, 83 Nassau st. New York.
Mix Lucius C. wood engraver, 100 Nassau st. New York.
Mobile Glass Co. 501 N. 3rd st. St. Louis, Mo.
Moffat R. R. electrician, Brooklyn, New York.
Moffett James G. brass and copper manufacturer, 119 Prince st. New York.
Mogey William, brass finisher, 418 W. 27th st. New York.
Moneuse Elie, coppersmith, 128 S. Fifth avenue, New York.
Monopole Electric Light Co. Troy, New York.
Monow & Strong, babbit metal makers, 117 1st st. San Francisco, Cal.

Digitized by Google

Montgomery & Co. chemical apparatus manufacturers, 105 Fulton st. New York. Blow pipes, magnets, files, etc.
Moore B. F. & Son, nickel platers, 71 Nassau st. New York.
Moore, Jones & Co. brass founders, 1608 N. 8th st. St. Louis.
Moore & Price, gold and silver platers, 892 Broad st. Fewark, New Jersey.
Moore T. J. & Co. smelters, corner Wallabout and Bedford avenue, Brooklyn, New York.
Moore Alfred F. manufacturer of electric light fittings, 200 and 202 N. 3rd st. Philadelphia, Pa.
Moore A. M. electrician, 220 Devonshire st. Boston.
Moody C. D. patent solicitor, 421 Olive st. St. Louis, Mo.
Moore, F. L. electrician, 30 Hooker avenue, Poughkeepric, New York.
Moore Gideon E. analytical chemist, 122 Front and Liberty st. New York.
Moore Henry, importer of steel, 30 Gold st. New York.
Moore J. patent solicitor, 50 Pike's Opera building, Cincinnati, Ohio.
Moore John D. anti-fouling boiler compound maker, 38 Dey st. New York.
Moore Richard W. charcoal maker and dealer, 86 Tompkins st. New York.
Moore Thomas, brass finisher, 80 Elm st. New York.
Morau P. electrician, Philadelphia, Pa.
Morekworth H. patent solicitor, 226 Vine st. Cincinnati, Ohio.
Moreland J. lightning rod manufacturer, Denison, Tex.
Morgan James L. & Co. chemical manufacturers, 47 Fulton st. New York.
Morgan Lewis, metal punches, 19 Beekman st. New York.
Morganstein P. tin foil manufacturer, 70 Duane st. New York.
Morill Charles, patent solicitor, 64 College place, New York.
Moris J. H. wire manufacturer, Detroit, Mich.
Morrell Samuel, patern maker, r 59 Ann st. New York.
Morrill George H. & Co. manufacturers of printing ink for telegraphs, 25 Rose st. New York.
Morris & Essex, screw manufacturers, Brattleboro, Vt.
Morris, Tasker & Co. Limited, iron pipe manufacturers, 15 Gold st. New York.
Morris, Tasker & Co. Limited, iron pipe manufacturers, 230 S. 3rd st. Philadelphia.
Morris R. H. electrician and mechanical engineer, 195 Broadway, New York.
Morris William E. patent solicitor, 335 Broadway, New York.
Morrison & Corcoran, general platers, 120 Main st. Cincinnati, Ohio.
Morrison J. F. telegraph supplies, 7 South st. Balt. Md.
Morrison Richard, optician, 1 Adams st. Brooklyn, New York.
Morse Cyrus B. mechanical engineer, 120 Broadway, New York.
Morse James O. iron pipe manufacturer, 76 John st. New York.
Morton Thomas S. coppersmith, 65 Elizabeth st. New York.
Moser David H. designer and draughtsman, 58 Ann st. New York.
Moses T. Crane & Co. electric alarm manufacturers, 267 Boston st. New York.
Mosher Henry M. importer of steel, 38 Dey st. New York.
Moss Engraving Co. (wood) 535 Pearl st. New York.
Mott Barton H. wood engraver, 169 William st. New York.
Mott G. T. electrician, Philadelphia, Pa.
Mott J. L. iron pipe manufacturer, Iron Works, 88 Beekman st. 1283 Broadway and Third avenue, c. 133rd st. New York.
Muldoon & Killerlane, anti-fouling boiler makers, 240 West st. New York.
Muldoon H. P. gold and plain plater, 71 Sudbury st. Boston.
Mullers, Nicholas & Sons, bronze founders, 117 Chambers and 413 E. 25th st. New York.
Muller J. H. electrician, 540 West 16th st. New York.
Muller John T. turner, 513 W. 30th st. New York.
Mumford & Hanson, electrotypers, 704 Sanson st. Philadelphia.
Munday Evarts, patent solicitor, 69 Honore buildings, Chicago, Ills.
Mundheim Isaac, indigo importer, 206 Stanton st. New York.
Munn & Co. patent solicitors, 261 Broadway, New York, and Washington, D. C.
Munn & Co. patent solicitors, 7th and F sts. Washington, D. C.
Munsell, Rola & Co. mica merchants, 218 Water st. New York.
Munsen D. copper scroll lightning rod manufacturer, Indianapolis, Ind.
Murphy William T. electrolier and chandelier manufacturer, 96 John st. New York.
Murray Charles, wood engraver, 58 Ann st. New York.
Murray G. J. patent solicitor, 28 Wiggins block, Cincinnati, Ohio.
Mutual District Messenger Co. Limited, 850, 950 and 1209 Broadway, New York.
Mutual Electric Light & Supply Co. 37 Wall st. New York.
Mutual Union, 120, 529 and 1238 Broadway, New York.
Myers & Co. patent solicitors, 940 F st. Washington, D. C.
Myers J. & Co. iron pipe manufacturers, 20 Johnston st. Cincinnati, Ohio.

Digitized by Google

N.

Nail City Glass Co. Whieling, W. Va.
Narl. Cap. Telephone Co. 1413 G. st. Washington, D. C.
Nash & Co. patent solicitors, 133 S. 2nd st. Philadelphia, Pa.
Nash R. R. gold and plain plater, 17 Province st. Boston.
Nason Manufacturing Co. iron pipe, 71 Beekman and 71 Fulton sts. New York.
Nason Preston C. electric light contractor, Franklin, Mass.
Nathan & Dreyfus, injectors and enjectors, 92 Liberty st. New York.
National Chemical Works Co. 159 Front st. New York.
National Rubber Co. 136 Congress st. Boston, Mass.
National Scientific Association, patent solicitors, 97 Clark st. Chicago, Ills.
National Tube Works Co. boiler tube makers, 104 John st. New York.
National Tube Works Co. iron pipe manufacturers, 161 Lake st. Chicago.
National Tube Works Co. iron pipe manufacturers, McKeesport, Pa.
National Tube Works Co. iron pipe manufacturers, 113 Water st. Pittsburgh, Pa.
National Underground Electric Co. telegraph supplies, 216½ Walnut st. Philadelphia, Pa.
Naylor & Co. metal dealers, 99 John st. New York.
Neale C. A. patent solicitor 703 7th st. Washington, D. C.
Neapie & Levy, mechanical engineers, Beach and Palmer sts. Philadelphia, Pa.
Neef G. B. & Co. nickel platers, 214 Quarry st. Philadelphia, Pa.
Negus T. S. & J. D. chronometer makers, 140 Water st. New York.
Nell G. W. electrotyper, 253 South 12th st. Philadelphia, Pa.
Nelson & Myers, designers and draughtsmen, 58 Ann st. New York.
Nelson Admiral, galvanizer, 295 Pearl st. New York.
Nelson Alfred, manufacturing chemist, 4 Cedar st. New York.
Nelson William jr. iron pipe manufacturer, ft. E. 53rd st. New York.
Nelson William jr. (pottery for porous cups), 24 Old slip, New York.
Nen Joseph, turner, 199 Wooster st. New York.
Neumann John, Coppersmith, 118 Elizabeth st. New York.
Neville Edgar, wood engraver, 14 Ann st. New York.
Newark brass works, 24 Mechanic st. Newark, New Jersey.
Newark Electric Light & Power Co. telegraph supplies, Newark, New Jersey.
Newbeck & Weiss, mathematical instrument makers, 316 E. 84th st. New York.
Newhall Henry B. bolt, nut, and washer maker, 105 Chamber st. New York. Agent, Oliver Brothers & Phillips & Standard Nut Co.
Newman A. G. electric specialities manufacturer, 1180 Broadway and 17 W. 28th st. New York. Successor to Newman & Capron.
Newman Moses, patent solicitor, 167 Rivington st. New York.
Newton J. L. patent solicitor, 27 Pembroke square, Boston, Mass.
Newton J. M. Norwich, Conn.
Newton O. K electrician, 195 Broadway, New York.
Neynaber Adolph, drug mills, W. 115th c 10th avenue New York.
New Bedford Mass. Glass Works, manufacturers and dealers in electrical glass, F. S. Sherley.
New England Glass Works, 38 Park place and 33 Barclay st. New York.
New England Weston Electric Light Co. telegraph supplies, Boston Mass.
New Haven Copper Co. 290 Pearl st. New York.
New Haven Wire Co. New Haven, Conn.
New York Belting & Packing Co. vulcanized india rubber manufacturers, 29 Park row, New York.
New York Electric Light Association, 23 Dey st. room 5.
New York Electric Light Co. telegraph supplies, 16 Cortlandt st. New York.
New York Electrical Society, New York.
New York Electro-Motive & Power Co. telegraph supplies, 13 Dey st. New York.
New York Emery Co. 191 Fulton st. New York.
New York Felt Mills, 235 West st. New York. White & Crowell, Proprs.
New York Land & Ocean Telegraph Company, 27 William st. New York.
N. A. Iron Works, lamp post manufacturers, 40 & 42 Walton st. Brooklyn.
N. B. Copper Company, copper manufacturers, New Bedford, Mass.
N. E. Acid Co. manufacturing chemists, 159 Front st. New York.
N. E. Glass Works (W. L. Libby & Son) manufacturers and dealers in electrical glass, 67 Federal Works, E. Cambridge, Boston, Mass.
N. E. Glass Works, glass manufacturers, 4 P. O. sq. Boston, Mass.
N. E. Pltg. Co. gold and plain platers, 372 Atlantic avenue, Boston.
N. E. Type Foundry Co. electrotypers, 243 Washington st. Boston, Mass.

Digitized by Google

N. E. Weston Electric Light Co. 267 Washington st., Boston, Mass.
N. J. Zinc Co. zinc manufacturers, Fort Richards, New Jersey.
N. J. Zinc & Iron Co. zinc manufacturers, 61 Maiden lane, New York.
N. O. Telephone Exc. & Telephone Co. 25 Carondelet st. New Orleans.
N. W. Electric Gas Lighting Co. elec. apparatus for lighting gas, 134 Dearbom st. Chicago & 77 Clark st.
N. Y. BELTING & PACKING CO. rubber fabrics, 29 Park row, New York.
New York Calcium Light Co. 414 Bleecker st. New York.
New York Chemical Manufacturing Co. chemical manufacturers, 3 E. Fourth st., New York.
New York Coal Tar Chemical Co. chemical manufacturers, 10 Warren st. New York.
New York Dyewood, Extract of Chemical Co. chemical manufacturers, 161 Front st. New York.
New York Dynamo Electric Manuftg. Co. electrical instrument manufacturers, 907 Broadway, New York.
New York Electric Light Association, electrical supplies, 23 Dey st. New York.
New York Electric Lines & Telephone Co. (Sidney F. Sherbourne, Pres.) Cap $50,000. Just incorporated.
New York Ink Co. writing ink manufacturer, 19 Park pl. New York.
New York Nickel Plating Co. nickel platers, 239 Broadway, New York.
New York Optical Co. patent solicitors, 43 Maiden la. New York.
New York Pharmaceutical Association, manufacturing chemists, 10 College pl. New York.
New York Smelting & Refining Co. lead pipe manufacturers, 509 West st. New York.
New York Spar and Flint Pulverising Co. pottery (for porous cups), 16 Burling sl. New York.
New York Tarter Co. chemical manufacturers, 106 Wall st. New York.
New York Wire & Wire Rope Co. wire manufacturers, 21 Astor h, New York.
Nichols, David, wood engraver, 191 Broadway, New York.
Nichols David M. boiler (anti-fouling) maker, 2 Gouverneur sl. New York.
Nichols Francis B. chemical manufacturer, 62 William st. New York.
Nichols Jacob J. glass manufacturer, 26 Barclay st. New York.
Nichols J. M. copper scroll lightning rod manufacturer, Freeport, Ills.
Nichols J. V. electrician, Brooklyn, New York.
Nicholson H. C. electrician, Kenton, Ky.
Nicond A. nickel plater, 16 Maiden lane, New York.
Nieberg Frederick W. C. chronometer maker, 8 St. John st. New York.
Niven & Muir, electrotypers, Rochester, New York.
Nolen & Boardman, lamp black manufacturers, 5 Beekman st. New York.
Norman Adolphus P. designer and draughtsman, 14 John st. New York.
Normandeau Rierre A. nickel plater, 50 Ann st. New York.
Norris, J. L. patent solicitor, 501 F. st. Washington, D. C.
Norris Wallace, wire worker 209 E. Twenty-second st. New York.
Northnup W. P. & Co. electrotypers 13 E. Swan st. Buffalo, New York.
North Western Electric Gas Lighting Co, electrical instrument manufacturers, 77 Clark st. Chicago, Ills.
No. Wh. Glass Co., glass manufacturers. Whieling, W. Va.
Norton W. optician, 124, Fulton st. Brooklyn, New York.
Norwich Nickel Pate Co., general platers, Norwich, Conn.
Norwood, J. wire manufacturer, 349 Adams st., Brooklyn, New York.
NOSTRAND D. VAN, PUBLISHER OF SCIENTIFIC BOOKS, 23 MURRAY & 27 WARREN STS. NEW YORK CITY. Publisher of many standard Works on Electricity, Electric Telegraph and Electric Light, catalogue of which will be sent on application.
Nottingham, F. J. & Co. iron pipe manufacturers, 212 E Front st. Cincinnati, Ohio.
Nottingham J. R. patent solicitor, 515 Seventh st., Washington, D. C.
Nourse F. O. electrician, Boston, Mass.
Nuebell & Devos, manufacturers of printing ink for telegraphs, 14 1st st. New York.

O.

Oakley, Dowance & Jones, steam engine makers, 45 Franklin st. Chicago, Ill.
Oakes John, mathematical instrument maker, 140 Maiden lane, New York.
Oakley O. B., general plater, 638 Market st. San Francisco, Cala.
O'Brien J. general plater, 120 Exchange st. Philadelphia, Pa.
Oceanic & Oriental Steam for China, 1st cor. Brannan st. San Francisco.
Odell C. H. & E., metal brokers, 104 John st. New York.
Odell Eugene, metal broker, 79 Cedar st. New York.
Odell, J. B., electrician, Chicago, Ills.
O'Donnell Thomas, metal dealer, 82 Pike st. New York.
Oehlmann Adolph, brass finisher, r. 381 Broome st. New York.
Oelschlaeger Brothers, mathematical instrument makers, 162 William st. New York.
Offutt & Brockmann, general platers, 261 Randolph, Chicago.

Digitized by Google

Ogan P. M., copper scroll lightning rod manufacturer, 16 S. 5, St. Louis.
Ogden Electric Light Co. Ogden, Utah.
Ogden H. A. designers and draughtsman, 917 Broadway, New York.
O'Gorman Michael, pattern maker, Franklin c Centre st. New York.
Oliver & Co., pattern makers, 33 Park row, New York.
Oliver Arthur H., wire worker, 81 Fulton st. New York.
Olsen T. & Co., mechanical engineer, 500 n. 12th st. Philadelphia, Pa.
Oneil A. patent solicitor, New Britain, Conn.
O'Neill J., wire manufacturer, 365 Ontario st. Cleveland, Ohio.
O'Neill William, glass cutter, 68 E. Houston st. New York.
Onink C. J. electrotyper, 193 Main st. Buffalo, New York.
Operator, The, W. J. Johnston, publisher, 9 Murray st. New York.
Oram J. M., railway signal manufacturer, Dallas, Texas.
Orcutt W., copper scroll lightning rod manufacturer, Boston, Mass.
Ore Knot Copper Co. 6 Gray st. Baltimore.
Orford Copper and Nickle Co. (Bergen Point), Bayonne City, New Jersey.
Orr Nathaniel, wood engraver, 52 John st. New York.
Orth H., patent solicitor, 529 7th st. Washington, D. C.
Osborn, Tuttle & Osborn, patent solicitors, New Haven, Conn.
Osborn A., grease and tallow merchant, 119 Central st. Boston, Mass.
Osgood F. & Co., zinc manufacturers, 13 Burling sl, New York.
Osgood Worth, patent solicitor, 43 Astor h, New York.
Osmond William, wire worker, 669 Third avenue, New York.
Ostermoor H. D. & Son, felt makers, 36 Broadway, New York.
O'Sullivan M. F., electrician, Baltimore, Md.
Ottiwell John D., galvanizer, 199 and 1552 Third avenue, New York.
Otto F. G. & Sons, electro medical machine manufacturers, 64 Chatham st. New York.
Owen S. S. & Co., nickel platers, 109 E. 13th st. New York.
Oxley & Giddings, makers of fixtures for electric light, 113 Walker st. New York.

P.

Pabst & Arming, electrolier and chandelier manufacturers, 21 Murray st. New York.
Pacific Electric Co. telegraph supplies, 330 Gutta st., San Francisco, Cala.
Pacific Mail for New York, 1st corner Brannan st. San Francisco.
Pacific Type Foundry, electrotypers, 532 Clay st. Philadelphia, Pa.
Pacific Zinc Ore Factory, zinc manufacturers, 569, Mission st. San Francisco.
Page G. & Co. mechanical engineers, 5 W. Schroeder st. Baltimore.
Page George W. manufacturing chemist, 206 Broadway, New York.
Page Parker W. patent solicitor, 120 Broadway, New York.
PAINE & LADD, patent solicitors, 412 5th st., Washington, D. C.
Painter & Co. electrotypers, 510 Clay st. Philadelphia, Pa.
Palmenberg Joseph R. wire worker, showrooms 466 & 468 Broome st; factory 54 Greene st. New York
Palmer E. G. electrician, 74 Spring st., Hartford, Ct.
Palmer Herbert F. cotton waste manufacturer, 23 Thomas st. New York.
Palmer Nathan, electrician, 78th Fourth avenue, New York.
Palmer's James F. & Son, electric light fixture makers, 47 University pl. New York.
Pancoast & Tarr, iron pipe manufacturers, 28 Platt st. New York.
Pardessus Semon J. glass shade maker and dealer, 9 Park pl. New York.
Parham C. screw manufacturer, 712 Cherry st. Philadelphia, Pa.
Park, Benjamin & Bros. patent agents, 234 Broadway. Engineers and Exports in Patents.
Park A. F. patent solicitor, Troy, New York.
Park A. F. W. electrician, Philadelphia, Pa.
Parker E. D. electrician, Salina, Kans.
Parker William S. electrician, 216 Centre st. New York.
Parkhurst A. J. patent solicitor, Oskaloosa, Iowa and Indianapolis, Ind.
Parkinson J. G. & R. H. patent solicitors, 41 Pike's Opera bldgs. Cincinnati, Ohio.
Parkscott & Co. copper manufacturers, 122 2nd avenue, Pittsburgh, Pa.
Parkscott & Co. copper manufacturers, 64 W. 2nd Cincinnati, Ohio.
Parodi & Bellati, patent solicitors, 48 Centre st. New York.
Parsons Charles R. designer and draughtsman, 48 Beekman st. New York.
Parsons Hy. electrician, 23 Plane st. Newark, New Jersey.
Particelli A. general plater, 652, Mission st. San Francisco, Cala.

Digitized by Google

Partrick & Carter, electrical supplies, 114 South 2nd st. Philadelphia, Pa.
Partz August, electrical supplies, Philadelphia, Pa.
Passaic Chemical Co. manufacturing chemists, 85 John st. New York.
Passaic Zinc Co. zinc manufacturers, J. City, New York.
Passaic Zinc Co. zinc manufacturers, 113 Liberty st. New York.
Patee T. H. electrician, Greencastle, Inda.
Patent Metallic Weather Strip Co. wire screen manufacturers, 924 Broadway, near 21st. st. New Yo
Patent Water & Gas Pipe Co. iron pipe manufacturers, 41 Dey st. New York.
Patten J. jr. & Co. iron pipe manufacturers, 61 Greenpoint avenue, Brooklyn, New York.
Patterson Co. (Limited) makers of fixtures for electric lights, 17 W. Houston st. New York.
Patterson H. T. & Co. brass workers' supplies, 138 Centre st. New York.
Patterson John M. electrical instrument manufacturer, 91 Grant st. Pittsburgh, Pa.
Patterson W. electrician, Idlewood, Pa.
Patterson Wm. R. electrician, Chicago, Ills.
Paul W. electrician, Ansonia, Ct.
Paul's A. Sons, pattern makers, 515 W. 34th st. New York.
Paulsen William, metal dealer, 10 Burling sl. New York.
Payne John H. brass finisher, 33 W. 29th st. New York.
Payne Joseph S. brass finisher, 148 W. 33rd st. New York.
Peacock Joseph S. metal broker, 13 Park row, New York.
Pearce & Jones, telegraph supplies, 64 John st. New York.
Pearce R. K. telegraph supplies, 32 S. 7th st. Philadelphia, Pa.
Pearl & Elm, wire manufacturers, Cincinnati, Ohio.
Pearson M. general plater, Portland, Me.
Peck, Howard & Co. boiler (anti-fouling) maker, 72 West st. New York.
Peck C. C. electrician, Middlebury, Vt.
Peckham William H. patent solicitor, 6 Liberty pl. New York.
Peet William C. designer and draughtsman, 84 Naussau st. New York.
Pelkin W. L. & H. C. general plater Hartford, Conn.
Pendergast, Smith & Co. steam engine makers, 217 Fremont st. San Francisco.
Pendleton Charles G. nickel plater, 209 Centre st. New York.
Penna Aluminium Nickel Works, nickel platers, Amber and Rush sts. Philadelphia, Pa.
Penna Brass Works, 1226 Hamilton st. Philadelphia.
Penna Lightning Rod Co. Harrisburg, Pa.
Penna Lightning Rod Co. 514 N. 8th st. Philadelphia, Pa.
Pennelli Peter, mathematical instrument maker 194 William st. New York.
Pennington J. C. & D. manufacturing chemists, 5 William st. New York.
Pennsylvania Tube Co. iron pipe manufacturers, 4 Duquesne way, Pittsburgh, Pa.
People's Telephone & Telegraph Co. 45 William st. 115 Broadway, and 4 E. 14th st. New York.
Peoria Plating Works, Preoria, Ills.
Pepper J. brass founder, 186 Plymouth st. Brooklyn.
Perce & Hallett, patent solicitor, 3 Butler exchange, Providence, R. I.
Perdrieux E. L. patent solicitor, 426 Walnut st. Philadelphia, Pa.
Perkins J. M. patent solicitor, 809 L st. Washington, D. C.
Pesoa Isaac G. wood engraver, 96 Fulton st. New York.
Peters C. J. & Son, electrotypers, 73 Federal st. Boston, Mass.
Peterson J. M. optician, 39 Broadway, Brooklyn, New York.
Petri & Pels, wood engravers, 22 N. William st. New York.
Petterson John, coppersmith, 102 Market st. New York.
Pettet William, electrolier and chandelier manufacturer, 60 Warren st. New York.
PETTIT JOHN & BRO. talc merchants, 240 Pearl st. New York.
Peyton W. J. electrician, Washington, D. C.
Pfeiffer & Collis, general platers, 6 Calham place, Chicago, Ills.
Pfeiffer Jacob, patent solicitor, 550 Grand st. New York.
Pfenning Henry R. coppersmith, 136½ Liberty st. New York.
Pfizer Charles & Co. manufacturing chemists, 81 Maiden lane, New York.
Phelps, Dodge & Co. brass and copper manufacturers, 11 Cliff st. New York.
Phelps W. P. electrician, Philadelphia, Pa.
Philadelphia Local Telegraph Co. 107 So. 3rd st. Philadelphia, Pa.
Philadelphia, Reading & Pottsville Telegraph Co. 204 So. 4th st. Philadelphia, Pa.
Philadelphia Nickel Plating Works, 1528 Frankfort avenue, Philadelphia, Pa.
Philadelphia Screw Co. Limited, 12 and Buttonwood sts. Philadelphia, Pa.
Philips William J. electrical supplies, 2030 Delancy place, Philadelphia.
Phillips & Sons, scientific booksellers, 80 4th avenue, New York.
Phillips A. D. electrician 82 Academy st. Jersey City, New Jersey.

Digitized by Google

Phillips Charles H. manufacturing chemist, 2 Platt st. New York.
Phillips J. H. electrician, 238 6th st. New York.
Phillips J. S. analytical chemist, 1 Wall st. New York.
Phillips, W. P. electrician, Washington st. New York.
Philps, Dalton & Co. electrotypers, 236 Washington st. Boston, Mass.
Phœnix Glass Co. 87 Water st. Pittsburgh, Pa.
Phœnix Packing & Rubber Co. 108 Liberty st. New York.
Phosphor Bronze Manufacturing & Smelting Co. Limited, 512 Arch st. Philadelhpia, Pa.
Photo-Electric Engraving Co. 20 Cliff st. New York.
Photo. Electrotype Co. Daniel Cherry & Co. 13 and 15 Park row, New York.
Photographic Electrotype Co. engravers, 63 Oliver st. Boston, Mass.
Photographic Engraving Co. 728 Chestnut st. Philadelphia.
Photographic Engraving Co. 67 Park place, New York.
Pickford H. electrician, Chelsea, Mass.
Pierce A. M. patent solicitor, Astor House, New York.
Pierce C. W. J. felt maker, 108 Worth st. New York.
Pierson E. M. (Supt. for Tillotson & Co.) electrician, 143 Centre st. New York.
Pike's, Benjamin, Son & Co. patent solicitors, 928 Broadway, New York.
Pilger Charles L. patent solicitor, 65 Fourth avenue, New York.
Pippit Abner R. electrician, St. Louis.
Pither William, pattern maker, r 247 Spring st. New York.
Pitz John, pattern maker, 323 E. 2nd st. New York.
Plant B. J. wire manufacturer, 43 Summer avenue, Brooklyn, New York.
Platt Henry B. manufacturing chemist, 36 Platt st. New York.
Plum W. R. telegraph company, 18 Marine bldgs. Chicago, Ills.
Plumb C. submarine telegraph cable manufacturer, 100 Niagara st. Buffalo, New York.
Plume & Atwood Mfg. Co. wire manufacturers, 13 Federal st. Boston, Mass, and 109 Luke st. Chicago, Ills.
Plume & Atwood Mfg. Co. telegraph company, 18 Murray st. New York.
Plush Dr. Saml. M. Supt. Phila. Local Telegraph Co. 107 So. 3rd st. Phila. Pa.
Pneumatic Signal Telegraph Co. 75 Astor house, New York.
Pollock Julius, manufacturing chemist, Boston av. n 166th st. New York.
Pond C. H. electrician, New York.
Pond Electric Signal Co. electrical instrument manufacturer, 130 Fulton st. New York.
Pool A. A. & Co. electric alarm manufacturers, 55 N. J. R. R. avenue, New Jersey.
Pool John H. & Macy, oil merchants, 27 Water st. New York.
Poole & Hunt, mechanical engineers, 7 German st. Baltimore.
Pootley C. E. patent solicitor, 505 9th st. Washington, D. C.
Pope, Edgecoomb & Butler, patent agents, 12 Park pl. New York.
Pope F. L. electrician, Hartford, Ct.
Pope Frank L. electrician, 32 Park pl. New York.
Pope, R. W. electrician, 9 Bond st. New York.
Pope W. H. electrician, Murray & Church sts. New York.
Popular Science (The) (m.) D. Appleton & Co. 1, 3 & 5 Bond st. New York.
Portable Electric Light Co. 79 Water st. Boston.
Porter & Hutchinson, patent solicitors, 69 Devonshire st. Boston, Mass.
POST & CO. electric switch manufacturers, South West corner Pearl & Elm sts. Cincinnati.
Postal Telegraph Co. 2 Wall st. New York.
Potter Jotham, care Messrs. Walsh, Hall & Co. Yokohama, Japan.
Powell Wm. & Co. general plater, 247 W. 5th st. Cinn. Ohio.
Powell, Caroline A. wood engraver, 31 W. 35th st. New York.
Power Maurice J. brass finisher, 5 Beekman & 218 E. 25th st. New York.
Powers & Weightman, manufacturing chemists, 56 Maiden la. New York, & at 838 N 9th st. Phila. Pa.
Powers John, brass finisher, 438 E. 10th st. New York.
Poynter & Moreland, general platers, Wilmington, Del.
Pratt & Co. general platers, 52 Terrace st. Buffalo, New York.
Pratt Arthur, patent solicitor, 75 Nassau st. New York.
Pratt L. A. electrician, Rochester, New York.
Pratt R. J. electrician, Troy, New York.
Prentice James, patent solicitor, 176 Broadway, New York.
Prentiss, G. W. & Co. wire manufacturers, Holyoke, Mass.
Prescoll Bros. copper scroll lightning rod manufacturers, 52 Killey st. Boston, Mass.
Prescott G. B. electrician, 7 Dey st. New York.
Prescott George B. snr. electrician, 20 Fifth avenue, New York.
Prescott, George B. junr. electrician, 195, Broadway, New York.

Digitized by Google

Price C. E. nickel plater, 243 Arch st. Phila. Pa.
Price Edward W. manufacturing chemist, 58 Maiden la. New York.
Pride, Fraleigh & Kyle, burglar and fire alarm manufacturers, 23 Dey st. New York.
Priest Charles P. wood engraver, 14 John st. New York.
Princetown, New Jersey scientific course.
Prindle & Co. patent solicitors, 515 7th st. Washington, D. C.
Prooth C. electrician, 109 Liberty st. New York.
Prosch Andrew, mathmetical instrument maker, 36 Platt st. New York.
Prosser Thomas & Son, boiler tube makers, 15 Gold st. New York.
Prosser T. T. electrician, Chicago, Ills.
Protin Brothers, designers and draughtsmen, 47 S. Fifth avenue, New York.
Providence Brass Foundry, 460 Eddy st. Providence, R. I.
Provident Steam Engine Co. 24 N. 4th st. Phila. Ohio.
Puffer A. D. & Sons, brass founders, 46 Portland st. Boston, Mass.
Pugh A. H. electrotyper, 126 Walnut st. Cincinnati, Ohio.
Pulvermacher Galvanic Co. electricians, 265 & 1164 Broadway, New York.
Pundersand & Crisand, electrotypers, New Haven, Conn.
Purcell Edward, designer and draughtsman, 11 Ann st. New York.
Purtell & Hanman, general platers, 66 S. Canal st. Chicago, Ills.
Putnam, T. A. B. electrician, New York.
Putnam, W. V. general plater, Rahway, New Jersey.
Pyroluaite Maganese Co. Woodward, Esq. Secretary, asbestos manufacturers and mine owners, 54 Cliff st. New York.

Q.

Quarre V. Co. glass shade makers and dealers, 11 Murray st. New York.
Queen City Nickel Plating Works, 101 W. 5th st. Cincinnati, Ohio.
Queen James S. chronometer maker, 78 Nassau st. New York.
Quenzer Mary, pottery for porous cups, Sixty-five avenue C. New York.
Quick E. B. & Brother, pattern makers, 818 5th st. New York.
Quimby Edward E. patent agent, 64 College place, New York. Expert in patent causes.
Quincy John W. & Co. babbit metal makers, 98 William st. New York.
Quinn A. charcoal maker and dealer, 161 6th st. E. D. Brooklyn, New York.

R.

Racine Electric Light and Power Co. Racine, Wisconsin.
Radcliffe Squires, felt maker, 206 West st. New York.
Rader G. W. & Co. pottery for porous cups, 611 W. 51st st. New York.
Rae Frank B. electricians' authors, San Francisco, Cal.
Raettig Charles, mechanical engineer, 43 John st. New York.
Raht Charles, metal broker, 85 John st. New York.
Railroad Safety Lock and Signal Co. 33 Market st. Camden, New Jersey.
Rainey & Hosea, patent solicitors, 60 Johnston buildings, Cincinnati, Ohio.
Raisbeck Electrotype Co. 68 Beekham st. New York.
Rall William F. cotton waste manufacturer, 35 Stone st. New York.
Ramsay H. A. & Co. mechanical engineers, Hughes cor. William st. Baltimore.
Rand, McNally & Co. publishers of scientific books, 148 to 154 Monroe st. Chicago.
Rand U. S. & Co. electrotypers, Toledo, Ohio.
Randall Charles A. electrician, 113 Fulton st. New York.
Randolph J. F. lightning rod manufacturer, Carlisle buildings, Cincinnati, Ohio.
Randolph Mahlon, patent solicitor, 13 Park row, New York.
Rankin, E. D. gold and plain plater, 50 Sudbury st. Boston.
Ranney Henry C. glass manufacturer, 58 Barclay st. New York.
Rattery Emil, wire worker, 48 W. 30th st. New York.
Rau Henry M. analytical chemist, 92 New Church st. New York.
Rauda Otto, electrical instrument manufacturer, 194 Fulton st. New York.
Rauler, Julius, nickel plater, 205 Elm st. New York.
Raxton & Pennell, railroad supplies, 77 Maiden lane, New York.
Raymond C. S. & Co. electrolier and chandelier manufacturers, 266 G'wich st. New York.
Raymond A. R. electrician, 432 Walnut st. Philadelphia, Pa.
Raymond F. F. patent solicitor, 29 Pemberton sq. Boston, Mass.
RAYNOR H. M. platinum refiner and manufacturer, supplier of telegraph appliances, 25 Bond st. N. Y.

Digitized by Google

Reading Iron Works, boiler tube makers, 28 Platt st. (Pancoast and Tarr, agents).
Recht Charles, metal dealer, 183 Bowery st. New York.
REDDING JEROME & CO. makers and suppliers of electrical telegraph appliances, 30 Hanover st. Boston, Mass.
Redding H. electrician, Everett, Mass.
Redding J. electrician, Malden, New York.
REDDING, M. H. electrician, 8 Broad st. New York.
REDMAN & KENNY, wood engravers, 52 John st. New York. Electrotypes of all Exposition, and fair medals for sale.
Redman, George A. Manager Brush Electric Light Co. 11 Wilders arcade, Rochester, New York.
Reed & Barton, silver plate ware manufacturers, 686, Broadway, New York.
Reed & Carnrick, manufacturing chemists, 182 Fulton st. New York.
Reed & Keller, wire workers, 120 W. 25th st. New York.
Reed J. L. asbestos and asbestos material manufacturer, 416 Arch, Philadelphia.
Reese F. M. patent solicitor, 108 Diamond st. Pittsburgh, Pa.
Regney P. general plater, 665 Mission st. San Francisco, Cala.
Rehm William T. patent solicitor, Third avenue N. 151 st. New York.
Reich Louis, maker of electric apparatus for lighting gas, Albany, Ga.
Reichardt F. Alfred & Co. chemical apparatus manufacturers, 96 Liberty st. New York.
Reid & Bros. nickel platers, Reading, Pa.
Reiley, Edward, file maker, r 59 Ann st. New York.
Reilly Solomon S. electrolier chandelier manufacturer, 400 and 469 Canal st. New York.
Reisert & Orth, coppersmiths, 181 Prince and 122 Sullivan sts. New York.
Reitz C. & Snean E. J. electrical instrument manufacturers, Indianapolis, Ind.
Remmey John F. turner, r 92 Fulton st. New York.
Renault Louis, designer and draughtsman, 33 Nassau st. New York.
Rendrock Powder Co. 240 Broadway, New York.
Rengler F. A. & Co. electrotypers, 21 and 23 Barclay st and 26 and 28 Park place, New York.
Renton F. A. brass founder, 70 West st. E. D. Brooklyn.
Renwick Edward S. patent agent, 19 Park place, New York.
Revere Copper Co. 242 South st. New York.
Revere Copper Co. 47 Killey st. Boston, Mass.
Review of the Telephone and Telegraph, The, George Worthington, publisher, 23 Park row, New York.
Reybum Hunter & Co. lightning rod manufacturers, 494 St. John st. Philadelphia, Pa.
Reynolds Francis M. wood engraver, 192 Broadway, New York.
Reynolds George H. & Co. steam engine makers, 10 Cortlandt st. New York.
Rhode Island Electric Light Co. Providence, R. I.
Rhodes T. H. electrician, Brooklyn, New York.
Rice D. H. & L. C. electricians, Lowell, Mass.
Rice Arthur H. metal broker, 55 Fulton st. New York.
Rice Frank M. metal broker, 24 Cliff st. New York.
Rice L. C. patent solicitor, 1 Pemberton sq. Boston, Mass.
Richards & Co. chemical apparatus manufacturers, 398 Bowery st. New York.
Richards Daniel W. & Co. metal dealers, 88 Mangin st. New York.
Richards E. L. & Co. patent agents, 733 Broadway, New York.
Richards J. E. electrician, Cedar Keys, Philadelphia.
Richards, J. L. general plater, Springfield, Mass.
Richardson A. M. & Co. electrical instrument manufacturers, 104 W. 42nd st. New York.
Richardson Frederick G. wire manufacturer, 107 John st. New York.
Richardson James H. wood engraver, 58 Ann st. New York.
Richardson Robt. pottery for porous cups, 212 Concord st. Brooklyn, New York.
Richardson William H. wood engraver, 58 Ann st. New York.
Richmond & Cherry, nickel platers, 53 Ann st. New York.
Richmond F. E. electrician, Springfield, Mass.
Richter, G. F. electric bell fitter, 4 W. 19th st. New York.
Ricketts E. M. Ph.D., assayer; A. R. Ledoux A.M. Ph.D., New York.
Ridall & Ingold, agents for Brush Electric Co. 116 Market st. Pittsburgh, Pa.
Rider & Conley, 55 Water st. Pittsburgh, Pa.
Rieder G. & J. Haug, file makers, 182 2nd st. New York.
Riehl & Hasse, electrical instrument manufacturers, Race Cor. Longworth, Cincinnati, Ohio.
Riemann Herman, glass manufacturer, 88 Maiden lane, New York.
Riemenschneider Louis, patent solicitor, 130 Fulton st. New York.
Rieth J. F. & Co. wire workers, 259 Third avenue, New York.
Rieth John, glass blower, 138 Allen st. New York.
Riley & Lynch, nickel platers, 17 Mulberry st. Newark, New Jersey.

Digitized by Google

Ringler F. A. dealer in electrotypes, cor. Barclay and Church sts. New York.
Riodon J. & L. steam engine makers, cor. Beall and Howard sts. San Francisco.
Ripley Henry C. telegraph pole manufacturer, East Saginaw, Michigan.
Ristine C. general plater, 114 N. 2nd st. Philadelphia, Pa.
Ritter F. W. patent solicitor, 701 7th st. Washington, D. C.
Ritzmann Charles L. patent solicitor, 943 Broadway, New York.
Roach John & Son, steam engine makers, 814 E. 9th st. New York.
Robartes & Son, writing ink manufacturers, 165 Broadway New York.
Roberts & Havell, 284, nickel platers, 284 Washington st. Newark, New Jersey.
Roberts Edward E. steam engine maker, 107 Liberty st. New York.
Roberts Sidney D. metal dealer, 217 Water st. New York.
Roberts William, wood engraver, 36 Beekman st. New York.
Robertson, T. J. W. patent solicitor, 820 F. st. Washington, D. C.
Robinson Brothers, manufacturers of printing ink for telegraphy, 22 Vesey st. New York.
Robinson D. W. & Co. felt makers, 84 Franklin st. New York.
Robinson W. L., general plater, Worcester, Mass.
Rochester Electric Light Company, Rochester New York.
Rochester Machine Screw Manufacturing Company, Rochester, New York.
Rochicioli R. F. general plater 8 Tyler st. San Francisco, Cala.
Rochrig F. W. nickel plater, 248 Plymoath, Brooklyn.
ROCKWOOD PHOTOGRAPHIC ENGRAVING CO. 15 City Hall sq. New York.
Rocky Mountain Electric Light Company, agent for Brush electric Company, Salt Lake City, Utah.
Roddick T. general plater, Waltham, Mass.
Roebling Sons & Co. John A. telegraph supplies, 117 & 119 Liberty st. New York. Works at Trenton, New Jersey.
Roebuck S. & Co., wire screen manufacturers, 164 Fulton st. N. Y.
Roeder, Henry E. patent agent, 304 Broadway, New York.
Roesch & Beseler, calcium lights, 223 E. 9th st. New York.
Rogers & Brother, silver plate ware manufacturers, 690 Broadway, New York.
Rogers & Co. lamp black manufacturers, 299 Pearl st. New York.
Rogers J. F. & Co. emery and crocus manufacturers 107 Liberty st. New York.
Rogers & Morris analytical chemists, 95 Liberty st. New York
Rogers Wm. manufacturing Co. general platers, Hartford, Conn.
Rogers J. H. electrician, Washington, D. C.
Rogers H. electric alarm manufacturers, 119 Fulton st. New York.
Rogers L. W. electrotyper, 15 Cornhill Boston, Mass.
Rogers W. H. model maker, Fulton st. New York.
Rohrbeck William J. chemical apparatus manufacturer, 14 Bond st. New York.
Ronde Island Nickel Plating Works, 28½ Potter st. Prov. R. I.
Roome H. C. electrician, Jersey City, New Jersey.
Roos F. & Son, pottery for porus cups, 51 N. 11th st. Brooklyn.
Roos August, coppersmith, 232 W. 27th st. New York.
Root & Burrows, nickel platers, Erie, Pa.
Rorke Edward & Co. electrolier and chandelier manufacturers, 40 Barclay st. New York.
Rosenberg, Solomon, patent solicitor, 404 Grand st. New York.
Rosengarten & Sons, manufacturing chemists, 26 Liberty st. New York.
Rosenthal Harris, coppersmith, 47 Orchard st. New York.
Ross C. W. electrician, Columbus, Ohio.
Rost & Co. model makers, cor. Elm and Pearl sts. Cincinnati, Ohio.
Rothschild J. & Son, turners, 6 Tompkins st. New York.
Rothschild Herman, patent solicitor, 38 Bowery st. New York.
Rounds S. P. electrotyper 175 Munroe st. Chicago.
ROUSSEAU D, electrical specialities and appliance manufacturer, 138th st. and 4th avenue Manufacturing Office 181 Broadway, New York.
Rowell R. electrotyper, Louisuille, Ky.
Royce & Mareau, electrical instrument manufacturers, 1408 Penna. avenue, Washington, D. C.
Roylance Mark & Co. wood engravers, 88 Centre st. New York.
Royle Charles, brass finisher, Franklin n Centre st. New York.
Rubber Comb and Jewellery Co. electrical supplies, 33 Mercer st. New York.
Rudd C. H. electrician, Evanston, Ills.
Rudman Herman, patent solicitor, 92, Essex st. New York.
Ruestow & Dryden, wood engravers, 10 Spruce st. New York.
Rumsey & Co. electric bell manufacturers, 93 Liberty st. New York.
Runkel Henry G. electrician, 21 E. 15th st. New York.
Runkle William, iron pipe manufacturer, 162 Broadway, New York.

Digitized by Google

Rupp Michael & Co. chronometer makers, 39 South st. New York.
Rupp William, analytical chemist, 117 Pearl st. New York.
Russell, Burdsall & Ward, screw manufacturers, Porchester, New York.
Russell Henry & Co. electrolier and chandelier manufacturers, 42 Barclay st. New York.
Russell J. W. & Co., glass cutters, 297 Pearl st. New York.
Russell Wm. I & Co., metal brokers, 12 Cliff sr. New York.
Russell S. H. gold and plain plater, 8 Province st, Boston.
Ruthven G. R. Resident Vice-President of Telegraph, Havana.
Ryan J. & Co., electrotypers, South and German sts, Baltimore, Md.
Ryan, May & Latus, electrolier and chandelier manufacturers, 38, Bleecker st. New York.
Ryan W. F. glass manufacturer, 291 Front st. Brooklyn, New York.

S.

Sabin J. I. electrician, San Francisco, Cal.
Sabine J. B. electrician, 195 Broadway, New York.
Sabine John B. patent solicitor, 102, Broadway, Room 20, New York.
Sacket F. G. electrician, Knox, Pa.
Sagnol Etienne, coppersmith, 44 W. 4th st. New York.
St. Louis Nickel Pltg. Works, general platers, 115 Morgan st. St. Louis, Mo.
St. L. W. M. Co. wire manufacturers, Mercer & Papin, St. Louis.
St. Paul Electric Light & Power Co. St. Paul, Minn.
Salamander Felting Co. felt makers, 23 Dey st. New York.
Salgee Oliver, babbit metal maker, 77 Noble st. Greenpoint, Brooklyn, E.D.
Salomon L. A. & Bro. talc merchants, 216 Pearl st. New York.
Samuelson Francis, pattern maker, 38 Gold st. New York.
San Antonio Electric Co. San Antonio, Texas.
San Francisco & Pac. Glass Works, glass manufacturers, cor. King and 4th st. San Francisco, Cal.
San Francisco Type Foundry, electrotypers, 512 Clay st. Philadelphia, Pa.
San Jose Brush Electric Light Co. 284 Santa Clara st. room 9, San Jose, Cal.
Sanborn John, metal broker, 217 Water st. New York.
Sandermann Herman, brass finisher, 16 McKibbin st. Brooklyn.
Sanderson George & Co. importers of steel, 30 Gold st. New York.
Sands & Baxter, brass finishers, 6 Reade st. New York.
Sandy Hook, Quarantine & City Island, telegraph company, 60 Beaver st. New York.
Saner A. & Co. general platers, Louisville, Ky.
Sarcia Jules, electrician, 5 Tribune bdg. New York.
Sargeant Manufacturing Co. nickel platers, 79 Summit st. Newark, New Jersey.
Sargent F. H. general plater, New Bedford, Mass.
Saville B. general plater, 209 N. 3rd st. St. Louis, Mo.
Sawyer William E. electrician, 61 Broadway, New York.
Sawyer W. W. electrician, Springfield, Mass.
Sawyer Wm. H. electrician, Providence, R. I.
Sayles Henry L. galvaniser, 314 E. 75th st. New York.
Scanlon Michael, brass finisher, r 120 Elizabeth st. New York.
Scarabelich J. & C. Hulster, metal dealer, 185 Ludlow st. New York.
Schaefer Fred. pottery (for porous cups) 85 Clay st. Brooklyn.
Schaefer John, turner, 259 W. 27th st. New York.
Schaffert Leonard, metal spinner, 127 Worth st. New York.
Schaumberg A. patent solicitor, 1 St. Paul st. Baltimore, Md.
Scheerer & Gress, turners, 147 Baxter st. New York.
Scheidig John & Co. patent solicitors, 43 Maiden la. New York.
Scheurer F. brass finisher, 68 Gerry st. Brooklyn, New York.
Schilling Peter, brass finisher, r 43 Eldridge st. New York.
Schimpf August H. designer and draughtsman, 169 William st. New York.
Schinck Julius, wood engraver, 92 Fulton st. New York.
Schirmer Charles, brass finisher, r 100 Wooster st. New York.
Schlageter & Reis, tallow dealers, 558 W. 36th st. New York.
Schlesinger Oscar L. railroad supplies, 112 Pearl st. New York.
Schmaier Schwartz & Co. tin foil manufacturers, 493 1st avenue, New York.
Schmanser Dr. Theodore, electrical supplies, Allegany City, Pa.
Schmid Charles, turner, 256 W. 28th st. New York.
Schmidt A. & Brother, steam gauge manufacturers, r 41 Centre st. New York.
Schmidt O. E. & Co. metal dealers, 22 Burling sl. New York.

Digitized by Google

Schmitt P. wire manufacturer, 156 Graham avenue, Brooklyn, New York.
Schneider, Campbell & Co. makers of fixtures for electric lights, 7, Union sq. and 20 E. 15th st. N. Y.
Schneider & Klepper, designers and draughtsmen, 44 W. Broadway, New York.
Schneider Bennett B. electrolier and chandelier manufacturer, 35 Park pl. New York.
Schneider John, turner, r 161 Attorney st. New York.
Schneider Philip, turner, 189 Stanton st. New York.
Schnuck & Co. general platers, Derby, Conn.
Schoeller Charles, mathematical instrument maker, 259 W. 27th st. New York.
Schoenberg Metal Manufacturing Co. metal dealers, 530 E. 20th st. New York.
Schoener W. L. brass founder, 226 N. 9th st. Brooklyn.
Scholes F. sulphur dealer, 152 Kent avenue, Brooklyn, New York.
Scholfield S. patent solicitor, 50 Westminster st. Providence, R. I.
Schon Samuel, turner, r 171, Suffolk st. New York.
School of "Steam and Mechanical Engineering," 254 260 West 18th st. New York.
SCHOOLEY W. D. electric street lamp manufacturer, &c. Richmond, Ind.
Schoonmaker D. general plater, Springfield, Mass.
Schott Emanuel, brass finisher, 80 Elm st. New York.
Schrader August, brass finisher, r 216 William st. New York.
Schrauer Louis, patent solicitor, 228 E. 34th st. New York.
Schuck John G. pattern maker, 101 Wooster st. New York.
Schulte Wm. F. A. mechanical engineer, 103 William st. New York.
Schulze L. & Son, general platers, 104 N. 6th st. Philadelphia, Pa.
Schulze H. M. electrotyper, 98 Paydras st. New Orleans, La.
Schunemand & Swift, metal spinners, 207 centre st. New York.
Schuyler S. D. electrician, 64 Cedar st. New York.
Schwartz Christian, steam engine maker, 108 Liberty st. New York.
Schwarzschild & Sulzberger, tallow dealers, 187 Washington st. ft. W. 45th st. and W. Washington Market, New York.
Schweitzer & Son, glass cutters, 145 Mulberry st. New York.
Schweizer August, mechanical engineer, 160 Fulton st. New York.
Schweizer J. zinc manufacturer, 54 Metro. avenue, Brooklyn, New York.
Schwenker W. M. steam packing manufacturer, 108, Liberty st. New York.
Schwirs J. H. wire manufacturer, 231 Lorimer st. Brooklyn, New York.
Science (w.), Jno. Michels, Tribune building, New York.
Scientific Times, publishers of electrical periodicals, &c. 822 & 824 Broadway, New York.
Scientific American (The) and *Scientific American Supplement* (both w.), published by Munn & Co. 261 Broadway, New York.
Scott & Browne, manufacturing chemists, 108 Wooster and 575 G'wich, New York.
Scott & Ward, general platers, Indianapolis, Ind.
Scott G. B. electrician, Brooklyn, New York.
Scott George B. electrician, 195, Broadway, New York.
Scott Walter H. glass manufacturer, 39 Barclay st. New York.
Scoville Manufacturing Co. brass and copper manufacturers, 419 Broome st. New York.
Scoville Manufacturing Co. wire manufacturers, 183 Lake st., Chicago, Ills.
Scribner, Welford & Armstrong, scientific booksellers, 743 Broadway, New York.
Scribner E. Chas. electrician, Chicago, Illinois.
Seabury & Johnson, manufacturing chemists, 21 Platt st. New York.
Seagrave Owen, pattern maker, White c. Centre st. New York.
Seamen W. H. general plater, Greenfield, Mass.
Sears Edward, wood engraver, 48 Beekman st. New York.
Sebillot A. M. G. electrician, Denver, Col.
Secret Telephone & Telegraph Co. Randall C. A. genl. manager 160 Broadway, New York.
See I. W. electrician, Hamilton, Ohio.
Seeley H. W. electrician, New York.
Seelig M. J. & Co. zinc manufacturers, 145 Manger st. Brooklyn.
Seely L. W. patent solicitor, 701 Seventh st. Washington, D.C.
Seibert, E. J. medical electrician, 822 Broadway, New York.
Seipel, John, mathematical instrument maker, 60 Chatham st. New York.
Selby Smelting & Lead Co. babbit metal maker, 416 Montgomery, San Francisco, Cal.
Selden C. electrician, Toledo, Ohio.
Seldon William C. mechanical engineer, 93 West st. New York.
Sellers William & Co. manufacturers of shafting pulleys, &c. 79 Liberty st. New York.
Semmons Joseph H. patent solicitor, 687 Broadway, New York.
Senior Henry, wood engraver, 77, Nassau st. New York.
Serf Nicholas, metal dealer, 15 Thompson st. New York.

Digitized by Google

Serrel Edw. W. jr. electrical supplies, New York.
Serrell Lemuel W. patent solicitor 140 Nassau st. New York.
Sesson H. D. electrician, Mell River, Mass.
Seton J. iron galvaniser, 421 Myatte avenue, Brooklyn.
Sexaner L. electrician, Brooklyn, New York.
Seymour H. A. patent solicitor, 607 Seventh st., Washington, D. C.
Shachan J. H. optician, 202 Grand st. Brooklyn, New York.
Shanghai Electric Company, Shanghai, China.
Shapleigh T. W. & Co. machine screw manufacturer, 30 Hanover st. Boston, Mass.
Shardlow Joseph, turner, 116 Fulton st., New York.
Sharp Thomas R. mechanical engineer, 185 Broadway, New York.
Shaw, Jas. & Co. coppersmith, 173 Christopher st. New York.
Shaw, C. A. patent solicitor, 5 Cordt st. Boston Mass.
Shaw, F. electrician, Englewood, New Jersey.
Shaw Matthew, telegraph supplies, 259 W. Twenty-seventh st. New York.
Shaw W. S. patent solicitor, 352 Main st. Buffalo, New York.
Shawbridge & Taylor patent solicitors, 903 Walnut st. Philadelphia, Pa.
Shearer, John, glass cutter, r 120 William st. New York.
Shedd & Gawyer, mechanical engineers, 65 Westminster st. R. I.
Shedlock Alfred, patent agent, 39 Broadway, New York.
Shedlock John D. patent solicitor, 39 Broadway, New York.
Sheehy R. J. agent for Brush electric Co. Norfolk, Va.
Sheffield Frederick, designer and draughtsman, 14 John st. New York.
Sheffield Velocipede Car Co. machine manufacturers, Three Rivers, Mich.
Sheldon E. B. & Co. electrotypers, New Haven, Conn.
Shepard J. patent solicitor, New Britain, Conn.
Shepman W. E. general plater, 41 Gery st. San Francisco, Cal.
Shepperson A. B. telegraphic code ciphers, 25 Beaver st. New York.
Sherer Bros, analytical chemists, 122 Front st. New York.
Sheridan Electric Light Co. of New York, 137 Broadway, manufactory 138 Jane st. New York.
Sheridan H. B. electrician, Cleveland, Ohio.
Sheridan Joseph P. glass cutter, 72 Murray st. New York.
Sherman John, brass and copper manufacturer, 296 Broadway, New York.
Sherrill Roper Air Engine Co. air engine makers, 93 Washington st. New York.
Shiras J. O. telegraph supplies, 13 W. Fourth street, Cincinnati, Ohio.
Shoppell, R. W. dealer in wood cuts, 24 Beekman st. New York.
Shoppell's Press Engraving Co. engravers, 24 Beekman st. New York.
Shopphell Robert W. wood engraver, 60 Bible h. st. New York.
Shotwell Fred. C. metal broker, 57 Maiden la. New York.
Show A. W. & Co. general platers, Indianapolis, Ind.
Shriver T. & Co's Iron Foundry Works, 333 East Fifty-sixth st. New York.
Shuey W. H. automatic electro-signalling apparatus maker, Room 32 Cooper Union, New York.
Shugg Bros. wood engravers, 18 Cortlandt st. New York.
Shuideuend & Lie, electrotypers, 200 Clark st. Chicago.
Sickels John, pattern maker, 145 Bank st. New York.
Simmons John, iron pipe manufacturer, 108 Centre st., New York.
Simon J. P. L. & Co. manufacturing chemists, 344 & 346 E. 23rd st. New York.
Symonds W. E. patent solicitor, Hartford, Conn.
Simonin Louisa, glass cutter, 63 Elizabeth st. New York.
Simons James S. designer and draughtsman, 14 John st. New York.
Sink A. E. electrician, 195 Broadway, New York.
Sintefl & Klumpp, turners, 13 Baxter st. New York.
Slater & Reid, boiler (anti-fouling) makers, 409 West and 167 Charles sts. New York.
Slatterly R. F. electrotyper, 61 Camp st. New Orleans, La.
Slattery M. M. M. electrician, New York.
Sleeper C. F. patent solicitor, 69 Devonshire st. Boston, Mass.
Slicer C. H. patent solicitor, 841 Fageth st. Baltimore, Mid.
Sloane T. O'C. analytical chemist, 119 Pearl st. New York.
Small C. S. H. electricians' author, 195 Broadway, New York.
Small George S. powder manufacturer, 59 Park place, New York.
Smart, Thomas L. wood engraver, 96 Fulton st. New York.
Smith Brothers, wire manufacturers, 17 Henry st. Brooklyn, New York.
Smith, Hewith & Co. lightning rod manufacturers, 247 Lake st. Chicago, Ills.
Smith & McDougal, electrotypers, 82 Beekham st. New York.
Smith & Rhodes' Electric Co. Limited, 95 5th avenue, cor. 17th st. New York.

Digitized by Google

Smith & Stroup, map and chart engravers, 5 and N. 6th st. Philadelphia, Pa.
Smith W. & Brothers, nickel platers, 619 Callowhill st. Philadelphia, Pa.
Smith's A. E. Son's Pottery Co. (for porous cups), 38 Peak st. New York.
Smith A. lamp black manufacturer, 66 Cortlandt st. New York.
Smith A. M. patent solicitor, 637 F. Washington, D. C.
Smith Calvin A. railroad supplies, 113 Liberty st. New York.
Smith Charles T. electrian, 195 Broadway, New York.
Smith Earle H. patent agent, 13 Park row, New York.
Smith F. S. electrician, 40 Pearl st. Boston, Mass.
Smith G. electrician, Astoria, New York.
Smith G. B. general plater, 609 N. 7th st. St. Louis, Mo.
Smith G. C. screw manufactnrer, Lowell, Mass.
Smith Gerritt H. electrician, 195 Broadway, New York.
Smith J. metal worker, 65 Java st. Brooklyn, New York.
Smith J. B. electrician, 57 Prospect place, Brooklyn.
Smith J. G. electrician, Hackensack, New Jersey.
Smith J. W. copper scroll lightning rod manufacturer, Gallesbury, Ills.
Smith James F. cotton waste manufacturer, 36 Peck slip, New York.
Smith Lenox, railroad supplies, 55 William st. New York.
Smith P. B. patent solicitor, 45 Major building, Chicago, Ills.
Smith R. D. O. patent solicitor, 615 F. Washington, D. C.
Smith T. J. electrical instrument manufacturer, 195 Broadway, New York.
Smith T. J. electrical instrument manufacturer, 81 Third st. (2 doors from Broadway), Brooklyn, E.D.
Smithsonian Institution, electrical supplies, Washington, D. C.
Smoltz Wm. electrical instrument manufacturer, 420 Montgomery st. San Francisco Cal.
Snean E. electrical instrument manufacturer, Indiapolis, Inda.
Snow C. A. & Co. patent solicitor, 709 G. Washington, D. C.
Snyder J. P. electric alarm manufacturer, 96 Fulton st. New York.
Snyder Ward B. steam engine maker, 106 Liberty st. New York.
Snyder William J. glass manufacturer, 54 Barclay st. New York.
So. Brooklyn S. E., brass founders, cor. Van Brunt and Grummitt sts. Brooklyn.
Soltmann E. mathematical instrument maker, 55 Fulton st. New York.
Soltmann Emil, wood engraver, 143rd n Third avenue, New York.
Somers Brothers, brass goods manufacturers, cor. Front and Pearl sts. Brooklyn.
Somes F. C. patent solicitor, 707 G. Washington D. C.
Soppan Godfried, turner, 191 Stanton st. New York.
Soule & Kookogey, patent solicitors, 719 Market square, Washington, D. C.
South-Western Brush Electric Light and Power Co. 38 Union st. New Orleans, La. **Agent for Brush Electric Co.**
Southcomb & Bro. wire manufacturers 7 N. Entand st. Baltimore, Md.
Southern Bell Telephone & Telegraph Co. 197 Broadway New York.
Southworth M. & G. screw manufacturer, Stoughton, Mass.
Spear E. patent solicitor, 701 7th st. Washington, D. C.
Spellier L. H. electrician, Doylestown, Pa.
Spencer Optical Manufacturing Co. patent solicitors, 11 Maiden lane, New York.
Spencer A. H. patent solicitor, 28 State st. Boston, Mass.
Spencer Benjm. M. railroad supplies, 106 Liberty st. New York.
Spencer Wire Co. Spencer, Mass.
Spice R. electrician, 336 Halsey st. Brooklyn, New York.
Spiegle Charles, wood engraver, 318 Broadway, New York.
Spiegle Charles jr. designer and draughtsman, 14 John st. New York.
Spink S. P. & Sons, general platers, 74th st. San Francisco, Cala.
Spitzer Leopold, coppersmith, 66 Centre st. New York.
Splitdorf Henry, wire worker, 174 Worth st. New York.
Spon E. & F. N. publishers of electrical periodicals, 44 Murray st. New York.
Spruce Charles & Co. file makers, 76 Reade st. New York.
Staats & Dillmeier, brass finishers, 134 1st st. E. D. Brooklyn, New York.
Stachlen William jr. metal spinner, 141, Elm st. New York.
Stafford Samuel S. writing ink manufacturer, 218 Pearl st. New York.
Stammer William, electrolier and chandelier manufacturer, 153 G'wich st. New York.
Stammers Henry E. electrician, 142 W. 38th st. New York.
Standard Electric Light Co. 211 Centre st. New York.
Standard Empire Vacuum Brake Co. railroad supplies, 57 Cedar st. and 445 W. 42nd, New York.
Standard Manufacturing Co. electric light fixture makers, 9 Bond st. New York.
Standard Manufacturing Co. Erie & Kingsbury, screw manufacturers, Chicago.

Digitized by Google

Standard Railway Joint Co. railroad supplies, 6 Cortlandt st. New York.
Standard Time Co. Newhaven, Conn.
Staniar & Laffey, wire manufacturers, 53 Fulton st. New York.
Stanley B. F. iron pipe manufacturer, 202 E. Front st. Cincinnati, Ohio.
Stansbury & Munn patent solicitors, St. Cloud building, Washington, D. C.
Starr W. L. & Co. nickel platers, 44 Lawrence st. Newark st. New Jersey.
Starr, E. T. electrician, Philadelphia, Pa.
Starr, J. W. iron pipe manufacturer, 200 S. 3rd st. Philadelphia.
Stayert Julius, wood engraver, 92 Fulton st. New York.
Stream N. W. patent solicitor, 513 7th st. Washington, D. C.
Stearns & George, electrical intrument makers, 29 Pearl st. Boston, Mass.
Stearns Jos. B. electrician, Boston, Mass.
Stebbings James H. jr. analytical chemist, 68 Beaver st. New York.
Stecher & Baumganten, general platers, 460 Dillwyn st. Phila. Pa.
Steeger Henry & Co. coppersmiths, 143 E. 31st st. New York.
Steele David, mechanical engineer, 5 Bowling gr. New York.
Steffens Nicholas, wire worker, 335 E. 21st st. New York.
Steinbuch F. & Son, glass manufacturers, 18 Platt st. New York.
Stem & Peck, patent solicitors, 75 W. 4 st. Cincinnati, Ohio.
Stendel R. A. electrical instrument manufacturer, 117 Clark st. Chicago, Ills.
Stendicke August, patent solicitor, 240 Pearl st. New York.
Stephens & Kellam, iron pipe manufacturers, 93 William st. New York.
Stephens Henry L. designer and draughtsman, 160 Fulton st. New York.
Stephens J. P. wire worker, 176 Fulton st. New York.
Stephenson R. G. electrician, 195 Broadway, New York.
Stetson Thomas D. patent solicitor, 23 Murray st. New York.
Stetzer Liborius, wire worker, r 134 Chrystie st. New York.
Stevens Institute of Technology, Hoboken, New Jersey.
Stevenson Henry, brass finisher, 97 Elizabeth st. New York.
Stevenson J. H. patent solicitor, 100 5th avenue, Pittsburgh, Pa.
Stevenson James E. mechanical engineer, 110 Liberty st. New York.
Stewart & Co. pottery for porous cups. 312 Pearl st. 539 W. 18th st. & ft. W. 19th st. New York.
Stewart & Co. wire manufacturers, So. Eastern, Pa.
Stewart & Jones, nickel platers, 54 N. 6th st. Phila. Pa.
Stidman & Co. wire manufacturers, 16 N. Frederick st. Baltimore, Md.
Stieffater George, wire worker, r 257 W. 35th st. New York.
Stieglitz W. brass founder, 37 Lorimer st. Brooklyn.
Stielitz Wm. metal worker, 37 Lorimer st. Brooklyn.
Stieringer L. electrician, New York.
Stillman Thomas B. & Co. analytical chemist, 40 Broadway st. New York.
Stillwell & Gladding, analytical chemists, 55 Fulton st. New York.
Stitdorf H. electrician, 174 Worth st. New York.
Stitt William, powder manufacturer, 61 Cedar st. New York.
Stockly C. E. agent for Brush electric Co., 34 Chestnut st. Cleveland, Ohio.
Stockwell Screw & Mach. Co. screw manufacturers, 56 Merwin st. Cleveland, Ohio.
Stockwell John C. metal dealer, 25 Ann st. New York.
Stodder Samuel, electrotypers, 90 Ann st. New York.
Stole J. A. zinc manufacturer, 588 Grand st. Brooklyn.
Stone J. electrotyper, Cambridge Port, Mass.
Stoner D. patent solicitor, 116 Washington st. Chicago, Ills.
Storer Jacob J. patent solicitor, 59 Astor h. New York.
Storm F. N. glass manufacturer, 11th st, car. 2nd E. D. Brooklyn.
Stoughton A. B. patent solicitor, 615 7th st. Washington, D. C.
Stover J. W. electrician, Newton, Mass.
Straats W. wire manufacturer, Lorimer & Johnson sts. Brooklyn.
Straeffer E. designer & draughtsman, 7 Murray st. New York.
Stratton Ezra W. writing ink manufacturer, 224 Lex. avenue, New York.
Street William, coppersmith, r. 92 Fulton st. New York.
Strong & Brindsley, wood engravers, 113 Fulton st. New York.
Strong H. C. electrician, Chicago, Ills.
Stroock S. & Co. felt makers, 21 Walker st. New York.
Struve Henry, turner, 217 Centre st. New York.
Stuart & Bankers, general platers, Bangor, Me.
Stump George W. coppersmith, 460 G'wich st. New York.
Sturdy G. H. & Co. general platers, 209 Pine st. Prov. R. I.

Digitized by Google

Sturdy J. E. general plater, 190 Eddy st. Providence, R. I.
Sullivan & Rankins, mechanical engineers, 36 Wooster st. New York.
Sullivan Jeremiah F. wood engraver, 111 Nassau st. New York.
Sullivan John, wire worker, 183 E. 124th st. New York.
Summers Charles H. electrician, W. U. T. Co. Chicago, Ills.
Summers R. telephone Co. 2nd avenue, and 19th st. New York.
Suspension Car Truck Manufacturing Co. railroad rupplies, 17 Broad st. New York.
Sussfeld, Lorsch & Nordlinger, patent solicitors, 13 Maiden lane, New York.
Sutro Brothers, braids on patent cards, 35 Wooster st. New York.
Suttie William J. patent solicitor, 39 Maiden lane, New York.
Sweeney J. & Barrett, brass finishers, 3 Dutch st. New York.
Sweeney Edward, brass finisher, 4 Duane st. New York.
Sweet & Young, mechanical engineers, 16 Exchange place, New York.
Sweet D. F. electrician, Hastings, Mich.
Sweet John, 124 Dearborn st. Chicago, Ills.
Sweet P. H. jr. & Co. patent solicitors, 820 F. Washington, D. C.
Sweetser George, chronometer maker, 63 South st. New York.
Swift Electric Light Co., telegraph supplies, Et. Saginaw, Mich.
Swift Lt. James A. electrician, Georgetown, D. C.
Symmes Wm. J. steam engine boiler maker, 84 Pike st. New York.

T.

Tagliabue Giuseppe, chronometer maker, 302 Pearl st. New York.
Tagliabue C. optician, 233 Fulton st. Brooklyn, New York.
Talbot C. N. electrician, New York.
Talisman Automatic Car Brake Co. railroad supplies, 32 Astor H. New York.
Taltarail T. R. electrician, 195 Broadway, New York.
Tanner A. M. patent solicitor, 425 7th st. Washington, D. C.
Tasker J. C. & Co. patent solicitors, 635 F. Washington, D. C.
Tatham & Bros. lead pipe manufacturers, 82 Beekman st. New York.
Taucks W. C. electrician, New York.
Taunton Copper Manufacturing Co. 11 Broad st. Boston, Mass. and Taunton, Mass.
Taunton Nickel Plating Co. Taunton, Mass.
Taylor W. S. & Bloodgood, jun. felt makers, 8 Thomas st. New York.
Taylor W. & Co. wire manufacturers, 12 Baatenahl blk. Cleveland, Ohio.
Taylor & Meeker, designers and draughtsmen, 4, College pl. New York.
Taylor Arthur S. glass cutter, 173 Grand st. New York.
Taylor J. electrician, 243 Foulton st. Brooklyn.
Taylor Jas. electrician, Ansonia, Ct.
Taylor Joel W. electrotyper, 15 Vandewater st. New York.
Teal B. T. electrician, Philadelphia, Pa.
Teggin Andrew, designer and draughtsman, 11 E. 14th st. New York.
Telephone Despatch Co. 40 Pearl st. Boston.
Telegraph Supply Co. electrical instrument manufacturers, 71 Ontario st. Cleveland, Ohio.
Teneyck Richard, wood engraver, 69 Nassau st. N. Y.
Tennant & Hatterslee, metallic packing merchants, 77 Adam st. Brooklyn, New York.
Teschemacher P. E. patent solicitor, 328 Washington st. Boston, Mass.
Textor H. general plater, Louisville, Ky.
Thau H. electrician, 126 Fulton st. New York.
Thau Henry, electrical instrument manufacturer, 130 Fulton st. New York.
Thaver Anson P. patent solicitor, 86 Astor h, New York.
Thom Charles A. brass finisher, 123 W. 28th st. New York.
Thomas Charles M. mechanical engineer, 314 E. 32nd st. New York.
Thomas H. electrician, 353 Wt. 35th st. New York.
Thomas H. L. felt maker, 106 Worth st. New York.
Thompson B. electrician, Toledo, Ohio.
Thompson David, electric carbon manufacturer, 13 Rutger st. formerly Lush st. Newark, New Jersey.
Thompson E. N. electrician, Britain, Ct.
Thompson H. M. patent solicitor, 712 Pine st. St. Louis, Mo.
Thompson W. electrician, Cutchoque, New York.
Thompson William G. pattern maker, 90 Fulton st. New York.
Thompson's Business & Telegraphic College, Fourth avenue, opposite the Cooper Union, New York.

Digitized by Google

Thomson A. A. & Co. metal dealers, 213 Water st. New York.
Thomson D. & Co. metal dealers, 215 Water st. New York.
Thomson Houston Electric Light Co. electrical instrument manufacturers, 3130 Chestnut st. Phila.
Thornberry H. T. electrician, Winona, Minnesota.
Thorne T. G. manufacturer of india rubber goods, 211 Fulton st. Brooklyn.
Thornton John S. patent agent, 7 Murray st. New York.
Tibbitts G. W. patent solicitor, 208 superior st. Cleveland, Ohio.
Tiebout W. & J. galvanizers, 33 Chambers st. New York.
Tiffany & Mott, analytical chemists, 10 Spruce st. New York.
Tilden & Co. manufacturing chemists, 24 Liberty st. New York.
TILLOTSON L. G. & CO. electrical supplies, 5 and 7 Dey st. New York. Factory 139, 141 and 143 Centre st.
Tilmay J. general plater, Portland, Me.
TIME TELEGRAPH CO. Temple st. Beekman st. New York.
Tingue House & Co. felt makers, 56 Reade st. New York.
Tisdale Chas. D. electrician, Boston, Mass.
Titus & Walker, general platers, Amesbury, Mass.
Titus W. H. brass founder, 377 Broadway, Brooklyn.
Titsink & Phillips, 207 electric light fixture makers, 207 Centre st. New York.
Tivy Lawrence, mechanical engineer, 24 John st. New York.
Toaspern Herman jr. designer and draughtsman, 7 Warren st, New York.
Tobey, M. B., writing ink manufacturer, 9 W. 14th st. New York.
Tobin F. Telephone Company, 1,643 Apton st. Philadelphia.
Tobin T. J. electrician, 195 Broadway, New York.
Toch, Grothe & Co. manufacturing chemists, 59 Goerck st. New York.
Todd J. C. & Simonton, steam engine makers, 13 Barclay st. New York.
Tonkin W. nickel plater, 629 Filbert st. Philadelphia, Pa.
Topliff, John H. electrician, St. Louis.
Torry & Eaton, metal dealers, 34½ Pine st. New York.
Toulmin, M. patent solicitor 942 O. Washington, D. C.
Towles G. B. patent solicitor, 529 7th st. Washington, D. C.
Townsend P. E. & Co. Limited, iron pipe manufacturers, Bradford Pa.
Townsend W. P. & Co. wire manufacturers, 19 Market st. Pittsburgh, Pa.
Townsend H. C. patent solicitor, 234 Broadway, New York.
Tracy, Dyer & Willeur, patent solicitors, 303, Enelid avenue, Cleveland, Ohio.
Tragesser John, Steam Copper Works, 447 to 455 W. 20th st. bet. Ninth and Tenth avenues and 273 Pearl st. New York.
Trask Asa G. emery and crocus manufacturer, 33 Murray st. New York.
Traver A. patent solicitor, Troy st. New York.
Traver & McCully, wood engravers, 287 Broadway, New York.
Travis & Ferry, electric light fixture makers, 140 Greene st. New York.
Treadwell Eugene, patent solicitor, 335 Broadway New York.
Treadwell William W. wood engraver, W. 229 Broadway, New York.
Tregoning I. electrician, Philadelphia, Pa.
Trent Joseph, wood engraver, 63 Fulton st. New York.
Trenton Iron Co. wire manufacturers, 21 N. 4th st. Philadelphia, Pa.
Trenton Iron Co. wire manufacturers, 17 Burling sl. New York.
Tresh John, pottery for porous cups, 405 W. 50th st. New York
Troy Henry W. designer and draughtsman, 160 Fulton st. New York.
Tucker & Bishop, patent solicitors, 17 7th st. Washington, D. C.
Tucker & Levett, 544 W. 16th st. New York.
Tudor F. & Co. mechanical engineers, 202 E. 12th st. New York.
Tudor H. C. electrician, Baltimore, Ma.
Tuft J. F. general plater, 132 Clark st. Chicago, Ills.
Tupper F. W. steam packing manufacturer, 58 and 10 Liberty pl. New York.
Turner E. S. & Co. general platers, 4 N. La Salle, Chicago, Ills.
Turner & Kanpp, gold and plain platers, 383 Washington st. Boston.
Turner W. H. & W. C. cotton waste manufacturers, 86 Leonard st. New York.
Turner J. screw manufacturer, Lowell, Mass.
Turner, Samuel, electrician, Cincinnati, Ohio.
Turner Thomas, railroad supplies, 21 Cortlandt st. New York.
Tuttle David H. wood engraver, 21 Beekman st. New York.
Twiss G. H. electrician, Columbus, Ohio.
Twohig J. F. patent solicitor, 21 Pikes Opera building, Cincinnati, Ohio.
Tyne Albert Evan, electrician, St. Louis.

Digitized by Google

U.

Underwood John & Co. manufacturers of printing ink for telegraphs, 30 Vesey st. New York.
Union Brass Manufacturing Co. 97 Ohio st. Chicago.
Union Brass Works, 247 W. Fifth st. Cincinnati Ohio.
Union Electric Manufacturing Co. telegraph contractors and engineers, suppliers of electrical appliances, 7 and 9 Bond st. New York.
Union Electric Works, electric alarm manufacturers, 126 Clark st. Chicago, Ills. Raslendell, propr.
Union Electrotype Foundry, 76 Frankfurt st. Cleveland, Ohio.
Union Glass Co. 129 Milk st. Boston, Mass.
Union Glass Works (Gregory agent), manufacturers and dealers in electrical glass, Boston.
Union Iron & Steel Co. railroad supplies, 54 William st. New York.
Union Nickel Plating Works, general platers, 129 Dorrane st. Providence, R. I.
Union Nut Co. bolt manufacturers, 99 Chambers st. New York.
Union Plating Works, general platers, 259 Randolph st. Chicago, Ills.
Union Steel Screw Co. Case avenue and Payne st. Cleveland, Ohio.
Union Steel Screw Co. 91 Lake st. Chicago.
Union Stone Co. emery and crocus manufacturers, 106 Liberty st. New York. Manager, A. E. Mallett.
Union Switch & Signal Co. telegraph supplies, Pittsburg, Pa.
Union Telegraph Instruction Co. 3 Park row, New York. Branch office in Brooklyn.
United Globe Electrical Light Co. 297 Fifth avenue.
United Nickel Co. nickel platers, 239 Broadway, New York.
UNITED STATES ELECTRIC LIGHTING CO. manufacturers of electric light fittings, Equitable buildings, 120 Broadway, New York.
United States Electric Illuminating Co. Charleston, S. C.
United States Illuminating Co. telegraph supplies, 90 Chambers st. New York.
United States Signal Office, electrical supplies, Washington, D. C.
United States Brick & Ceramics Manufacturing Co. pottery (for porous cups), 104 Pearl st. New York.
United States Concave Spring Co. railroad supplies, 21 Cortlandt st. New York.
United States Electric Fire Alarm Co. (telegraph), 72 Maiden lane, New York.
United States Engraving Works (photographic), 22 College place, New York.
United States Mineral Wool Co. 16 Cortlandt st. New York.
United States Photographic Engraving Co. 7 Murray st. New York.
United States Rolling Stock Co. railroad supplies, 35 Broadway, New York.
United States Tube Rolling Stock Co. railroad supplies, 5 Cortlandt st. New York.
Upton F. R. electrician Menlo Park, New Jersey.
Urban Adolph, analytical chemist, 497 Tenth avenue, New York.
Urquhart John S. successor to Albert Bridges, railroad supplies, Cortland st. New York.
Usener & Lembke, patent solicitors, 130 Fulton st. New York.
Ustick S. patent solicitor, 134 S. 4th st. Philadelphia, Pa.
Utica Fire Alarm Telegraph Co. 106 and 108 Liberty st. Utica. Albany Br. 25 Steuben st. Albany, N. Y.

V.

Vail T. W. electrician, Boston, Mass.
Valley Mining Co. zinc manufacturers, Randolph and Water sts. St. Louis, Mo.
Valley S. P. Works, general platers, 305 N. 7th st. St. Louis, Mo.
Van Amringe Theodore, emery and crocus manufacturer, 306 Pearl st. New York.
VAN DEPOELE ELECTRIC LIGHT CO. apparatus' manufacturers, Office and Works, Van Buren and Franklin sts. Chicago, Ills.
Vanderbilt & Hopkins railroad supplies, 120 Liberty st. New York.
Vandewerken Eldridge, electrolier and chandelier manufacturer, 50 Barclay st. New York.
Vankuyk Henry & Son, brass finishers, 237 Centre st. New York.
Vannatta S. K. general plater, 803 Washington avenue, St. Louis, Mo.
Vannevar E. B. brass founder 58 Fulton st. Boston, Mass.
Van Nostrand D. scientific bookseller, 23 Murray st. New York.
Van Orden Edward & Co. felt makers, 72 Maiden lane and 7 Liberty st. New York.
Vansantvoord & Hauff, patent solicitors, 44 Park row, New York.
Van Vleck C. electrotyper, Springfield, Mass.
Vander Weyde P. H. electrician, Md. Inst. Cooper Union.
Veller J. C. electrician, 2105 2nd avenue, New York.
Venable E. W. electrical instrument maker, 195 Broadway, New York.
Vetterling William, coppersmith, 210 Centre st. New York.

Digitized by Google

Victor, Bishop & Co., refiners, 47 Nassau st. New York.
Victoria, maker of magnetic clothing, 445 Fulton st. Brooklyn, New York.
Voelker Wm. L. electrician, Morton, Pa.
Vogeley Alexander, glass cutter, Franklin c Elm st. New York.
Vogt Brothers, engravers, 194 William st. New York.
Vollbracht Henry, designer and draughtsman, 23 E. 14th st. New York.
Voltmer Matthias, turner, 171 Suffolk st. New York.
Vonderluhe Theodore, wood engraver, 77 Nassau st. New York.
Voorhees J. H. patent solicitor, St. Cloud building, Washington, D. C.

W

W. A. Telegraph Co. (W. Earle) telegraph supplies, N. Sidney, Nova Scotia.
Wade H. D. & Co. manufacturers of printing ink for telegraphs, 117 Fulton and 50 Ann sts. New York.
Wadsworth George H. electrician, general manager Sheridan Electric Light Co. Cleveland, Ohio.
Wagner & Co. electrical instrument manufacturers, 14 Jackson st. Chicago, Ills.
Wagner, Emil W. electrical instrument manufacturer, 36 John st. New York.
Wagner E. W. electrical instrument manufacturer, 206 Race st. Cincinnati, Ohio.
Waite & Bartlett, electrical instrument manufacturers, 204 E. Twenty-third st. New York.
Waite H. E. electrician, 204 E. Twenty-third st. New York.
Waldron Engine & Pump Co. steam engine makers, 21 Nassau st. New York.
Waldstein Henry, patent solicitor, 41 Union sq. New York.
Wales William, jr. patent solicitor, 261 Broadway, New York.
Wales William, patent solicitor, 361 W. Thirty-fourth st. New York.
Walker Glass Importing, silvering & Manufacturing Co. glass cutters, 702 Broadway, New York.
Walker Jas E. & Co. manufacturing chemists, 20 Cortlandt st. New York.
Walker F. P. general plater, 627 Arch st. Philadelphia, Pa.
Walker D. patent solicitor, 89 Court st. Boston, Mass.
Walker J. nickel plater, 40 Franklin st. Newark, New Jersey.
Walker Josiah, charcoal maker and dealer, 517 W. Thirty-fifth st. New York.
Walker William, silver plate ware manufacturer, 64 Fulton st. New York.
Wallace & Sons, dynamo and magneto electric machine manufs. 89 Chambers & 71 Reade sts. New York.
Wallace & Son, wire manufacturers, Ansonia, Ct.
Wallin Samuel, designer and draughtsman, 7 Murray st. New York.
Walter H. electrician Cincinnati, Ohio.
Walther & Smith boiler (anti-fouling) makers, 481 Eleventh avenue, New York.
Walton, Joseph J, railroad supplies, 21 Dey st. New York.
Walworth Manufacturing Co. mechanical engineers, 69 Killey St. Boston, Mass.
Wapler Bros. glass shade makers and dealers, 22 Warren st. New York.
Ward Michael, metal dealer, 467 W. Forty-ninth st. New York.
Wardell Charles J. wood engraver, 160 Fulton st. New York.
Warden O. Henck's Opera House, Cincinnati, Ohio.
Warder R. B. Prof. analytical chemist, North Bend, Ohio.
Wardlow S. & C. importers of steel, 95 John st. New York.
Waring B. S. electrician, Pittsburg, Pa.
Warner Wm. R. & Co. manufacturing chemists, 49 Cedar st. New York.
Warren Bros. zinc manufacturers, 47 W. Lake, Chicago, Ills.
Warren & Ward, general platers, Bridgeport, Conn.
Warren, H. V. electrician, Marion, Iowa.
Warren J. D. electrotyper, 253 Washington st. Buffalo, New York.
Warth, Nat. G. manager Midland Telephone Co. Gallipolis, Ohio.
Washburn Ulysses L. wire worker, 878 Eighth avenue, New York.
Waterbury Brass Co. brass and copper manufacturer, 296 Broadway, New York.
Waterhouse A. G. electrician, 120 Broadway, New York.
Waters, John, Sons, platinum wire and plate for sale, 12 John st. New York.
Waters John W. wood engraver, 51 Fulton st. New York.
Waters M. lightning rod manufacturer, 426 Clinton avenue, New York.
Watkins Automatic Signal Telegraph Co. 294 Broadway, New York.
Watkins F. L. electrician, 31 Milk st. Boston, Mass.
Watson C. H. & Co. patent solicitors, 605 Seventh st. Washington, D. C.
Watson, T. A. electrician, Everett, Mass.
Watts, Campbell & Co. mechanical engineers, Ogden cor. Passaic avenue, Newark, New Jersey.
Watt's Telephone Co. telegraph supplies, Louisville, Ky.
Weakley, J. W. jr. electrical instrument manufacturer, 192 Wt. Fifth st. Cincinnati, Ohio.

Digitized by Google

Weakley jr. J. W. electrician, Bond Hill, Ohio.
Weaver Eph. E. electrician, 820 Capital st. Philadelphia, Pa.
Weaver N. patent solicitor, Phœnixville, Pa.
Weber Christian, wood engraver, 21 Beekman st. New York.
Weber Philip, patent solicitor, 100 E. Fourteenth st. New York.
Weber Philip, glass shade maker and dealer, 50 Barclay & 45 Ann sts, New York.
Webster E. G. & Bros. silver platers, 243 Fulton st. Brooklyn, New York.
Weddle & Magee, glass manufacturers, 33 Murray st. New York.
Weed & Kingwell, babbit metal makers, 125 First st. San Francisco, Cal.
Weed, Parsons & Co. electrotypers, 41 Columbia st. Albany, New York.
Weed Edwin A. wood engraver, 303 E. Thirty-sixth st. New York.
Weichert Arnold analytical chemist, 101 Wall st. New York.
Weightman & Wolff, mechanical engineers, 85 Astor h. New York.
Weiskopf Emanuel, patent solicitor, 182 Centre st. New York.
Weiss Marcus, electrolier and chandelier manufacturer, 301 W. Forty-second st. New York.
Weiss Sigmund, turner, 22 W. Third st. New York.
Weitz G. G. electrician, Boston, Mass.
Welch & Barnaum, railroad supplies, 54 William st. & Spuyton Duyvil, New York.
Welch & Lawson, steam engine makers, 203 Centre-st. New York.
Welch Abram R. turner, 258 W. Twenty-eighth st. New York.
Weldon Charles D. designer and draughtsman, 11 E. Fourteenth st. New York.
Wellenberg Henry, zinc manufacturer, 7 Thompson st. New York.
Welley & Hotchkiss nickel platers, 47 Anne st. New York.
Welling C. G. nickel plater, 88 John st. New York
Welmot T. J. telegraph supplies, Direct Cable Office, Rye, N. H.
Wenzel Adolph C. nickel plater, 114 Centre st. New York.
West & Bond, patent solicitors, 204 Dearborn st. Chicago, Ills.
West J. D. & Co. lightning rod manufacturers, 46 Cortlandt st. New York.
West P. copper scroll lightning rod manufacturers, St. Cloud, Minn.
West India & Mexican Steamship Line, 30 Carondelet st. N. O.
West India Telegraph & Telephone Co. Ld. Chillicothe, Ohio.
West Mal. Nickel Co. nickel platers, 45 William st. Newark, New Jersey.
Westcott & Thomson electrotypers, 710 Filbert st. Philadelphia.
Weston Boiler Co. boiler (anti-fouling) makers, 69 Liberty st. New York.
Western Brass Works, brass founders, 17 So. Sixth st. St. Louis.
Western Edison Light Co. Chicago. Controlling the States of Illinois, Iowa and Winconsin.
WESTERN ELECTRIC CO. CHICAGO, NEW YORK, INDIANAPOLIS, telegraph instrumen makers, 62 & 68 Church st. New York.
Western Electric Co. Indianapolis, Ind. G. H. Carter, Supt. Assembling Depôt.
Western Electric Light Co. 328 Montgomery st. San Francisco, California.
Weston Electric Light Co. electrical supplies, Newark, New Jersey.
Western Electric Mftg. Co telegraph supplies, 220 Kinzie st. Chicago & 62 N. Church st. New York.
Western Electric Manufacturing Co. electrical instrument manufacturers, 63 New Church st. New York.
Western Electric Manufacturing Co. electrical instrument manufacturers, 220 Kinzie st. Chicago, Ills.
Western Electrotype Foundry, electrotypers, 207 Chestnut st. St. Louis, Mo.
Western Newspaper Union, electrotypers, Des Moines st. Iowa.
Western School of Telegraphy, Janesville, Wis.
Western Union Telegraph Co. 197 Broadway, New York.
Westervelt A. B. & W. T. lightning rod manufacturers, 102 Chambers st. New York.
Westinghouse Machine Co. high speed engine makers, 92 & 94 Liberty st. New York.
Weston E. electrical instrument manufacturer, 288 Washington st. Newark, New Jersey.
Weston Edward, electrical instrument manufacturer, 23 Plane st. Newark, New Jersey.
Weston, Ed. electrician, 23 Plane st. Newark, New Jersey.
Weston, J. H. lightning rod manufacturer, 29 W. Sixth st. Cincinnati, Ohio.
Weston, J. R. lightning rod manufacturer, 79 Bank st. Cincinnati, Ohio.
Whalen W. D. electrician, Howel, Mich.
Whateley George B. brass finisher, 139 Lewis st. New York.
Wheeler E. S. & Co. metal dealers, 54 Cliff st. New York.
Wheeler E. S. & Co. wire manufacturers, New Haven, Conn.
Wheeler A. electrician, Concord, Mass.
Wheeler E. electrical instrument maker, 149 Lasalle st. Chicago, Ills.
Wheeler W. electrician, Concord, Mass.
Wherle F. T. & Co. charcoal makers and dealers, 546 and 548 W. 25th st. New York.
Whetstone & Co. iron pipe manufacturers, 107 N. 3rd st. Philadelphia.
Whitcomb H. C. & Co. electrotypers, 22 Milk st. Boston, Mass.

Digitized by Google

White & Crowell, railroad supplies, 235, West st. New York.
White Charles T. & Co. manufacturing chemists, 54 Maiden la. and 29 Liberty st. New York.
White John E. & Co. metal brokers, 221 Pearl st. New York.
White S. S. Dental Manufacturing Co. platinum refiners, 767, 769 and 1260 and 1262 Broadway, N. Y.
White T. & S. C. sulphur refiners, 7 Burling st. New York.
White George G. designer and draughtsman, 52 John st. New York.
White House Mills, electrical supplies, Hoosac, New York.
White Hugh R. wood engraver, 36, Beekman st. New York.
White Edward P. & Co. metal brokers, 55 Fulton st. New York.
White William H. mechanical engineer, 442 Chambers st. New York.
Whitehall Telephone Company, 35 William and 33 Murray sts. New York.
Whiting Belt Co. belting manufacturers, 111 Liberty st. New York.
Whiting W. H. H. electrician, Chelsea, Mass.
Whitman C. S. patent solicitor, 1477 G. st. Washington, D. C.
Whitney James A. patent solicitor, 140 Nassau st. New York.
Whiton E. N. & Co. railroad supplies, 69 Liberty st. New York.
Whiton Augustus S. railroad supplies, 58 Broadway, New York.
Whitton James, mechanical engineer, 61 William st. New York.
Widdam J. D. wire manufacturer, 74 N. Entaw st. Baltimore, M. D.
Wiedersheim J. A. patent solicitor, 110 S. 4th st. Philadelphia, Pa.
Wiggers Eva, glass shade maker and dealer, 180 E. Houston st. New York.
Wilcox Silver Plate Co. silver plate ware manufacturers, 6 Maiden la. New York.
Wild J. general plater, 15 S. 10th st. St. Louis, Mo.
Wilder Elihu, screw manufacturer 216 Washington st. Boston, Mass.
Wildes Thomas jr. metal dealer, 124 Beekman st. New York.
Wiley G. P. Manager Mex. Telephone Co. City of Mexico, Mex.
Wilhelm & Bonnor, patent solicitors, 248 Main st. Buffalo, New York.
Wilhelm A. & Co. zinc manufacturers, 221 Poplar st. Reading, Pa.
Wililamsburgh Flint Glass Works, Throop avenue and Gerry st. Brooklyn, New York.
Wilkins E. Ward, electrician, 114 802nd st. Philadelphia, Pa.
Wilkins William B. railroad supplies, 115 Broadway, New York.
Will & Finck, electrical instrument manufacturers, 769 Market st. San Francisco, Cal.
Will August, designer and draughtsman, 744 Broadway, New York.
WILLIAMS A. & CO., publishers of electrical periodicals, &c. 283 WASHINGTON ST. BOSTON.
Williams Charles & Son, wire screen manufacturers, 85 Fulton st. New York.
Williams Arthur B. designer and draughtsman, 123 Fulton st. New York.
Williams C. jnr. telegraph supplies, 109 Court-st. Boston, Mass.
Williams Edward, H. lightning rod manufacturers, 64 Cottage pl. New York.
Williams George A. wire worker, 85 Fulton st. New York.
Williams H. W. patent solicitor, 258 Washington st. Boston, Mass.
Williams John, electric light fixture maker, 115 E. 13th st. New York.
Williams Richard S. platinum refiner, 621 Sixth avenue, New York.
Williams R. D. patent solicitor, cor. Balto and Holliday sts. Baltimore, Md.
Williams T. W. electrician, Milwaukee, Wis.
Williamson Douw D. manufacturing chemist, 11 Dey st. New York.
Willing Charles G. boiler (anti-fouling) compound makers, 88 John st. New York.
Wilmington Wire Works, wire manufacturers, Wilmington, Dela.
Wilson James & Son, wood engravers, 54 E. 13th st. New York.
Wilson W. D. & Co. manufacturers of printing ink for telegraphs, 7, Spruce st. New York.
Wilson David, brass finisher, 545, W. 33rd st. New York.
Wilson J. A. patent solicitor, Zanesville, Ohio.
Wilson Silas H. patent agent, 460 Washington st. New York.
Wilsonia Magnetic Co. electric clothing manufacturers, 465 Fulton st. Brooklyn.
Winan Herman W. steam packing manufacturer, 408 Bleecker st. New York.
Wingate Charles F. analytical chemist, 119 Pearl st. New York.
Winham Edward A. jr. designer and draughtsman, 58 Ann st. New York.
Winsor & Money, brass founders, 122 Dorrance st. Providence, R. I.
Winterbum J. & Co. electrotypers, 417 Clay st. Philadelphia, Pa.
Wintersdorff Leon, patent solicitor, 71 Nassau st. New York.
Wirsching Hoys, telegraph superintendent, 28 Centre st. New York.
Withers G. B. general plater, 14 James st. St. Louis, Mo.
Wittatowsky A. F. L. electrician, Ann Arbor, Mich.
Wittemann Brothers, tin foil manufacturers, 45 Murray st., New York.
W. N. Tel. Co. electricians, Cincinnatti, Ohio.
W. N. Tel. Co. electricians, St. Louis.

Digitized by Google

Wohlfarth A. brass founder, 132 Leonard st. Brooklyn.
Wolcott J. E. (manager) W. U. Telegraph Co. Greentown, Ohio.
Wolfe L. W. & Co. dynamo and magneto electric machine manufacturers, 120 S. 14th st. corner Douglas st. Omaha, Neb. Electro magnetic engines.
Wolforth A. brass finisher, 132 Leonard st. Brooklyn.
Wollersen Joseph, turner, 147 E. 23rd st. New York.
Wood & Boyd, patent solicitors, 4th and Main sts. Cincinnati, Ohio.
Wood N. & Co. zinc manufacturers, Plymouth, Mass.
Wood & Richmond, designer and draughtsman, office 176 Broadway, New York.
Wood J. J. electrician, 126 Cambridge pl. Brooklyn.
Wood Andrew, brass finisher, 387 Bowery st. New York.
Wood R. Troy electrotyper, New York.
Woodfil J. R. electrician, Aurora, Ills.
Woodhouse Daniel A. brass finisher, r 59 Ann st. New York.
Woodman C. & Co. iron pipe manufacturers, 41 Pene st. Boston, Mass.
Woods, Sherwood & Co. wire workers, 176 Fulton st. New York.
Woodward C. H. manganese merchant, 54 Cliff st. New York.
Woodward John H. metal dealer, 103 E. Houston st. New York.
Wooley & Co. wire screen manufacturers, 63 Fulton st. New York.
Woolf Bros. patent solicitors, 75, Nassau st. New York.
Woolf Samuel, patent solicitor, 309 Broadway, New York.
Woolley L. G. electrician, Mendon, Mich.
Woolman George S. patent solicitor, 116 Fulton st. New York.
Woolson O. C. electrician, Newark, New Jersey.
Worcester Wire Co. wire manufacturers, Worcester, Mass.
Worcester Machine Screw Manufacturing Co. Worcester, Mass.
Worrall & Co. brass founders, furnaces, etc. 28 Elm st. New York.
Wright J. K. & Co. manufacturers of printing inks for telegraphs, 22 Spruce st. New York.
Wright Wm. & Co. nickel platers, 62 Hamilton st. Newark, New Jersey.
Wright C. charcoal maker and dealer, 117 Wood st. Philadelphia, Pa.
Wright Chauncey, wood engraver, 77 Nassau st. New York.
Wright C. D. & Brown, patent solicitors, 31 Pemberton sq. Boston, Mass.
Wright James T. electrolier and chandelier manufacturer, 225 G'wich st. New York.
Wright John E. electrician, 135 Broadway, New York.
Wright W. H. nickel platers, Erie, Pa.
Wuterich F. J. nickel plater, cor. White and Elm sts. New York.
Wyand Daniel E. designer and draughtsman, 7 Murray st. New York.
Wyman Isaac G. manufacturing chemist, 142, Horatio st. New York.

Y.

Yale College, scientific course, New Haven, Conn.
Yates & Ely, nickel platers, 136 st. & 3rd avenue, New York.
Yeager Walter R. designer & draughtsman, 169 William st. New York.
Young & Co. railroad supplies, 61 William st. New York.
Young M. general plater, 131 Dorrance st. Providence, R. I.
Young Samuel, electrician, Lowell, Mass.

Z.

Zachgow August, turner, 402 W. 48th st. New York.
Zackerle A. E. patent solicitor, 1837 Frankford avenue, Philadelphia, Pa.
Zante D. general plater, 190 Jessie st. San Francisco, Cala.
Zeese A. & Co. electrotypers, 157 Dearborn st. Chicago.
Zeltmacher Adolph, belting manufacturer, 84 Duane st. New York.
Zenope Alexander, designer and draughtsman, 4 College place, New York.
Zeuschner E. electrical instrument manufacturer, 189 Vine st. Cincinnati, Ohio.
Zimdars C. E. electric bell manufacturer, 160 W. 27th st. New York (pneumatic call).
Zucker & Levett Chemical Co. 540, 542, 544, & 546 W. 16th st. New York.

Digitized by Google

LIST OF

AMERICAN

Telegraph and Telephone Companies,

WITH

NAMES OF DIRECTORS,

PARTICULARS OF CAPITAL, TARIFFS, &c.

Digitized by Google

OFFICERS AND SUPERINTENDENTS OF THE WESTERN UNION TELEGRAPH COMPANY.

NORVIN GREEN, *President.* THOMAS T. ECKERT *General Manager.*

Vice-Presidents.

AUGUSTUS SCHELL. THOMAS T. ECKERT. HARISON DUCKEE. JOHN VAN HORNE.

A. R. BREWER, *Secretary.* J. B. VAN EVERY, *Auditor.* R. H. ROCHESTER, *Treasurer.*

Board of Directors.

NORVIN GREEN.	CYRUS W. FIELD.	WILLIAM D. BISHOP.
THOMAS T. ECKERT.	EDWARDS S. SANFORD.	C. P. HUNTINGTON.
EDWIN D. MORGAN.	JAMES H. BANKER.	GEORGE B. ROBERTS.
JOHN VAN HORNE.	MOSES TAYLOR.	ZALMON G. SIMMONS.
AUGUSTUS SCHELL.	ROBERT LENOX KENNEDY.	SAMUEL SLOAN.
HARRISON DURKEE.	HUGH J. JEWETT.	ERASTUS WIMAN.
JAY GOULD.	J. PIERPONT MORGAN.	AMASA STONE.
RUSSELL SAGE.	FREDERICK L. AMES.	GEORGE J. GOULD.
ALONZO B. CORNELL.	EDWIN D. WORCESTER.	CHAUNCEY M. DEPEW.
SYDNEY DILLON.		JAMES W. CLENDENIN.

SUPERINTENDENTS.

EASTERN DIVISION.

District Superintendents.

First District.	—	—
Second ,,	R. T. CLINCH	St. John, N. B.
Third ,,	THOMAS ROCHE	Boston, Mass.
Fourth ,,	G. W. GATES	White River Junction, Vt.
Fifth ,,	S. B. GIFFORD	Syracuse, New York.
Sixth ,,	J. E. ZEUBLIN	Philadelphia, Pa.
Seventh ,,	W. J. HOLMES	New York City.
Eighth ,,	CHARLES O. ROWE	Titusville, Pa.

CENTRAL DIVISION.

R. C. CLOWRY, *General Superintendent*, Chicago, Ill.

District Superintendents.

First District.	F. H. TUBBS	Chicago, Ill.
Second ,,	L. C. BAKER	St. Louis, Mo.
Third ,,	J. J. DICKEY	Omaha, Neb.
Fourth ,,	FRANK JAYNES	San Francisco, California.
Fifth ,,	E. P. WRIGHT	Cleveland, O.
Sixth ,,	JOHN F. WALLICK	Indianapolis, Ind.
Seventh ,,	I. N. MILLER	Cincinnati, O.
Eighth ,,	I. McMICHAEL	Minneapolis, Minn.

SOUTHERN DIVISION.

G. W. TRABUE, *General Superintendent*, Nashville, Tenn.

District Superintendents.

First District.	J. W. KATES	Richmond, Va.
Second ,,	JAMES COMPTON	Nashville, Tenn.
Third ,,	J. A. BRENNER	Augusta, Ga.
Fourth ,,	C. G. MERIWETHER	Mobile, Ala.

Digitized by Google

WESTERN UNION TELEGRAPH COMPANY.

MANAGERS, OPERATORS, &c.

ANDERSON, JOS., *Assistant*, Buffalo.
BEAUMONT, H. F., *Manager*, Mears, Michigan.
BOSCHE, C. R., *Bookkeeper*, Buffalo.
BRANCH, W., *Manager*, Middleport, Ohio.
BUTLER, GEO., *Chief Operator*, In. Arcade, Rochester.
CARLISLE, G. E., *All Night Chief*, Buffalo.
CORCORAN, J. J., *Night Chief Officer*, Buffalo.
CRIPPEN, H., *Manager*, Athens, Ohio.
DAWSON, WARD, *Manager*, Okolona, Miss.
DOLAN, W. H., and THOMAS HENNING, *Assistants*, Buffalo.
HALL, A. J., *Manager*, East Buffalo.
HAYFORD, GEO., *Manager*, Post-office, Creswell, Ohio, Jefferson Co.
HILL, CLARK, *Manager*, Albany, Ohio.
HOAG, H. F., *Manager*, Aneram Lead Mines, New York.
HOCKLEY, G. R., *Manager*, Broomfield, Ky.
KEITH, F. T., *Manager*, First View, Colorado.
KELLOGG, GEORGE D., *Traffic Chief*, Buffalo.
KERR, W. S., *Manager*, Gallipolis, Ohio.
KITTON, F., *Chief Operator*, Cor. Main and Seneca sts., Buffalo.
KITTON, FRANK, *Chief Officer*, Buffalo.
LAIRD, THOMAS A., and A. C. TERRY, *Wire Chiefs*, Buffalo.
LARISH, JOSEPH W., *Electrician*, Buffalo.
LYON, C. D., *Manager, Official Business*, Chariton, Iowa.
NEWALL, R., *Manager*, Central Wharf, Buffalo.
PALMER, J. T., *Manager*, Conneaut, Ohio.
SEAMANS, H. A., *Manager*, Sigourney, Iowa.
SLOCUM J. J., and ISAAC MORRIS, *Assistants*, Buffalo.
TILLINGHAST, J. W., *Manager*, Buffalo.
TOWNS, T. H., *Manager*, Pomeroy, Ohio.
VAN GILDER, A. C., *Manager*, Point Pleasant, Pa.
VAUGHAN, M. L., *Manager*, Elk Street Market, Buffalo.
WHALEY, F. W., *Operator*, Point Pleasant, Pa.
ZELL, CHAS., *Operator*, Gallipolis, Ohio.

THE POSTAL TELEGRAPH COMPANY.

Organized under the Laws of the State of New York, 21st June, 1881.

Capital Stock, 210,000 Shares 100 dols. Each, 21,000,000 dols.
First Mortgage, 6 per cent. 30 year Gold Bonds, 10,000,000 ,,

OFFICERS AND DIRECTORS.

ALANSON W. BEARD, Boston, Mass., *President.*
HENRY CUMMINS, New York, *Vice-President.*
GEORGE L. SHOREY, Boston, Mass, *Second Vice-President.*
GEORGE D. ROBERTS, New York.
S. V. WHITE, New York.
C. N. JORDAN, New York.
GOV. CHARLES FOSTER, Columbus, Ohio.
PROF. ELISHA GRAY, Chicago, Ills.
CHESTER SNOW, Harwich, Mass.
R. M. PULSIFER, Boston, Mass.
JOHN S. ALLEY, Boston, Mass.

Treasurer.

HON. JOHN B. ALLEY, Boston, Mass.

Secretary.

HENRY E. FANSHAWE, New York.

Superintendent of Construction.

W. H. FAIRBANK.

EXECUTIVE COMMITTEE.

A. W. BEARD, HENRY CUMMINS, GEORGE L. SHOREY, GEORGE D. ROBERTS, S. V. WHITE.

OFFICES OF THE COMPANY.—No. 2, WALL STREET, NEW YORK.

Digitized by Google

THE GREAT NORTH WESTERN TELEGRAPH COMPANY OF CANADA.

Operating the lines of the Montreal Dominion and Manitoba Telegraph Companies.

HEAD OFFICE.—TORONTO, ONTARIO.

Executive Officers:

ERASTUS WIMAN, *President.* O. S. WOOD, *Vice-President.*
H. P. DWIGHT, *General Manager.* FREDERICK ROPER, *Secretary & Auditor.*
ARTHUR COX, *Treasurer and Superintendent of Supplies.*

Board of Directors.

ERASTUS WIMAN, New York. O. S. WOOD, Montreal, Quebec.
WILLIAM GOODERHAM, Toronto. HON. WILLIAM McDOUGALL, C.B., M.P., Ottawa.
ADAM BROWN HAMILTON. D. H. BATES, New York.
RICHARD FULLER HAMILTON. JAMES HEDLEY, Toronto.
A. S. IRVING, Toronto.

Superintendents.

B. B. TOYE, Toronto. N. W. BETHUNE, Ottawa. W. DOW, Plattsburg, New York.
A. GRANT, Montreal. H. McDOUGALL, Winnipeg, Man.
E. POPE, Quebec. D. VAN NOSTRAND, Watertown, New York

Superintendent of construction, Montreal. J. POUSTIE,
Superintendent of Reports, Toronto. R. F. EASSON.
W. S. BATTIN, *Assistant to General Manager, Toronto.*

ADLAND, S., *Manager*, Toronto, Ontario.
BLACK, GEO., *Manager*, Hamilton, Ontario.
BURNETT, GEO. A., *Manager*, Buffalo, New York.
CAMERON, E., *Manager*, Brantford, Ontario.
CURRY, *Manager, Operating Depart.*, Toronto, Ontario.
DUDLEY, E. E., *Chief Operator*, Buffalo, N.Y.
DWIGHT, L. B., *Manager*, Detroit, Michigan.
FURNESS, W., *Manager*, London, Ontario.
HALL, J., *Chief Operator*, Hamilton, Ontario.
McNALLY, J., *Night Chief*, Buffalo, New York.
TOYE, B. B., *Dir. Supt.*, Toronto, Ontario,
WAKEFORD, G. S., *Manager*, Deseronto, Ontario.
WARDLE, GEO., *Chief Operator*, London, Ontario.

THE

AMERICAN TELEGRAPH & CABLE COMPANY OF NEW YORK, U.S.A.,

213, GRESHAM HOUSE, OLD BROAD STREET, E.C.

CAPITAL $20,000,000.

Directors.

JAS. GOULD. FRED. S. AMES. D. H. BATES.
GENL. G. M. DODGE. GENL. THOS. T. ECKERT.

President:—GENERAL THOS. T. ECKERT.

Vice-President and Secretary:—D. H. BATES.

Treasurer:—G. S. MORISINI.

Secretary:—THOS. F. CLARK.

CABLES, when completed, will number Two Atlantic Cables from Cornwall to Nova Scotia.

TARIFF: Two Shillings (or 50c.) per word.

This Company is posted with other Members of Consolidation, and receives 22½ per Cent.

Digitized by Google

THE AMERICAN RAPID TELEGRAPH CO.

RATES FROM NEW YORK—

To Philadelphia.
Trenton, N. J.

To Paterson.
Newark.

Fifteen Cents for twenty words.

To Massachusetts.
Rhode Island.
Connecticut.
Baltimore, Md.
Washington, D. C.
Albany, N. Y.

To Troy.
Utica.
Syracuse.
Harrisburg, Pa.
Lancaster.
York.

Twenty Cents for twenty words.

To Rochester, N. Y.
Buffalo.
Bradford, Pa.
Carlisle.

To Oil City.
Pittsburgh.
Titusville.
Warren.

Twenty-five Cents for twenty words.

Managers.

Acly, Miss H. G., Hudson, New York.
Baker, S. H., Newburgh, Pa.
Benjamin, G. S., Lyons, New York.
Brewer, A. D., Worcester, Mass.
Cox, E. P., Washington, D. C.
Currens, M. C., Fannettsburgh, Pa.
Dennis, G. T., Clinton Corners, New York.
Dixon, J. H, Bradford, Pa.
Dolan, J. A., Willimanti, Conn.
Dunn, W. A., Baltimore, Md.
Dunham, A. J., Rochester, New York.
Eugene, A. L., Albany, New York.
Flagg, C. W., Meriden, Conn.
Hall, Z. Stout, Trenton, N. J.
Hambright, C. K., Harrisburg, Pa.
Hawkins, Miss G., North Attleboro', Mass.
Hinman, G. E., New York.
Howard, M. T., Frewsburgh, New York.
Huxley, F. T., Amsterdam, New York.
Janowitz, F. E., Pittsburgh, Pa.
Jobes, W. P., Batavia, New York.
Kellogg, J. A., Zelienople, Pa.
Leland, E. O., Springville, New York.
Lewis, Henry, Purdy's, New York.
Lindsley, E. H., Salamanca, New York.
Meising, B. J., Franklin, Pa.
More, L. M., Buffalo, New York.
Noss, M. A., Oil City, Pa.
Osborne, F., Warren, Pa.
Page, A. L., New Haven, Conn.
Pennroid, J. S., Mercer, Pa.
Pettengill, H. J., Boston, Mass.
Prindle, Miss F. E., Springfield, Mass.
Pucci, J. E., Hartford, Conn.
Reilly, A. A., Lancaster, Pa.
Shanley, E., Little Falls, New York.
Sherman, J. A., *Genl. Superintendent*, New York.
Shock, E. O., York, Pa.
Smith, J. S., Carlisle, Pa.
Suesman, A. L., Providence, R. I.
Townsend, Miss N. E., Marlboro', Mass.
Van Huesen, Miss E., Rome, New York.
Worthington, J. E., Conowingo, Md.

General Offices.

187, BROADWAY, New York. 178, DEVONSHIRE STREET, BOSTON.

AMERICAN DISTRICT TELEGRAPH COMPANY.

WILLIAM CHESTER, *General Superintendent*, 8, Dey Street, New York.
WILLIAM DRAKE, *General Manager*, 8, Dey Street, New York.

Executive Offices—No. 8, DEY STREET, NEW YORK.

Digitized by Google

TELEGRAPHIC TIME SERVICE.

FOR THE DISTRIBUTION OF CORRECT NEW YORK TIME.

This Instrument beats every two Seconds, with these exceptions:

1. At the beginning of each Hour and Quarter Hour, the instrument will strike like an Ordinary Clock, after which it will pause until the beginning of the next minute. The quarters are indicated by one, two, or three Double Beats, as required, after the repetition of the hour striking.
2. A pause of one beat (interval of four seconds) immediately before the beginning of each minute.
3. A pause of nine beats (interval of twenty seconds) immediately before the beginning of each period of five minutes.

The Hours and Quarter Hours are struck with increased power.

JAMES HAMBLET, Managing Time Service,

Room 48, Western Union Building, New York. In connection with W.U. Telegraph Co. Synchronized Clock Circuits to all parts of City.

THE

MERCHANTS TELEPHONE & TELEGRAPH CO. OF KANSAS & MISSOURI.

INCORPORATED 1881.

Licensee of American Bell Telephone Company.

Offices: 509, Delaware Street, Kansas City, Mo.

JOHN SAWYER, President. N. W. POOR, Vice-President & General Mangr.
J. D. CRUISE, Secretary. S. F. SCOTT, Treasurer.
PAUL W. BOSSART, Superintendent.

BALTIMORE AND OHIO TELEGRAPH DEPARTMENT.

GEO. P. FRICK, General Manager. R. STEWART, Supt. Telegraph.
C. W. CLARVOE, Asst. Supt. Telegraph. (Located in Baltimore, Md.) J. D. FLYNN, Asst. Supt. Telegraph. (Location, Newark, Ohio.)

Managers:

J. H. CLARKE, Boston, Mass.
C. H. WILSON, Phila., Pa.
W. H. CLARKE, Washington, D.C.
G. K. SMITH, Columbus, Ohio.
W. I. CAPEN, Cincinnati, Ohio.
W. J. CONNOLY, Louisville, Ky.
C. W. PRICE, New York.
G. LOMBARD, Baltimore, Md.
F. H. WARDEN, Wheeling, Ma.
G. W. IRWIN, Newark, Ohio.
L. B. ROBERTS, St. Louis, Mo.
C. H. WALTON, Chicago, Ills.
N. C. GRISWOLD, Pittsburg, Pa.

Treasurer: W. H. JAMES.

Auditor: W. I. THELIN. Assistant Auditor: W. M. BUCHANAN.

Secretary: W. E. KING.

Digitized by Google

TELEGRAPH SUPERINTENDENTS OF RAILWAYS.

C. & W. M. Railway.

H. F. Beaumont, *Station Agent*, Mears, Michigan.

Law Telegraph Company.

Childs, Wm. A., *Manager*, 140, Fulton street, New York.

Skelley's Ohio Telegraph Office.

Hayford, Geo., *Manager*, Post-office, Creswell, Ohio, Jefferson Co.

P. C. & St. L. Railway.

Hayford, Geo., *Manager*, Post-office, Creswell, Ohio, Jefferson Co.

Metrop. Telegraph & Telephone Co.

Eckert, W. H., *General Superintendent*, corner of Greenwich & Liberty streets, New York.

Philadelphia Local Telegraph Co.

Plush, Dr. Samuel M., *Superintendent*, Philadelphia, Pa.

Inspector-General, Telegraph—Havana.

Enrigne de Arantave.

Sub-Directors of Telegraph—Havana.

Bernardo Arrondo and Carlos Avalos.

Internat. Ocean Telegraph Co.—Havana.

G. R. Ruthven, *Resident Vice-President*.

L. S. and M. S. Railway.

Kline, N. J., *Telegraph Superintendent*, Cleveland.

Chicago, Burlington and Quincy Ry.

Morgan, J. F., *Telegraph Superintendent*.

Illinois Central Railway.

Jones, C. S., *Telegraph Superintendent*.

Kansas City, Lawrence and Southern Railways.

Hill, J. H., *Telegraph Superintendent*.

Wabash Railway.

Kinsman, G. C., *Telegraph Superintendent*.
Selden, C., *Telegraph Superintendent*.

St. Louis, Iron Mountain and Southern Railway.

Hammond, C. W., *Telegraph Superintendent*.

North-Western Railway.

Thayer, G. H., *Telegraph Superintendent*.

Chicago and Alton Railway.

Morley, W. K., *Telegraph Superintendent*.

Milwaukee and St. Paul Railway.

Simpson, G. E., *Telegraph Superintendent*.

Northern Pacific Railway.

Green, O. C., *Telegraph Superintendent*.

Michigan Central Railway.

Reed, C. C., *Telegraph Superintendent*.

Eastern Illinois Railway.

Drew, P. W., *Telegraph Superintendent*.

Chesapeake and Ohio Railway.

Leonard, N. B., *Telegraph Superintendent*.

Chicago, St. Paul, Minneapolis and Omaha Railways.

Hope, H. C., *Telegraph Superintendent*.

Grand Trunk Railway.

Fortune, J. W., *Telegraph Superintendent*.

Vandalia Railway.

Wolseley, R. B., *Telegraph Superintendent*.

Lake Shore and Michigan Southern Railways.

Kline, Wm., *Telegraph Superintendent*.

Chicago Rock Island and Pacific Railways.

Swift, A. R., *Telegraph Superintendent*.

Mexican Cable Company.

Driver, —, *Manager*.

G. C. and S. F. Railway Telegraph Company.

Gallagher, —, *Manager*.

C. H. V. & T. Railway.

Moriarty, Edward, *Operator*, Liek Run, Ohio.
Wilson, A., *Train Dispatcher*, Logan, Ohio.

C. R. & W. M. Railway.

Nye, T. C., *Superintendent*, Holland, Michigan.
Tucker, H., *Superintendent*, Holland, Michigan.

Union Pacific Railway.

Dickey, J. J., *Telegraph Superintendent*, Omaha, Neb.
Korty, L. H., *Telegraph Superintendent*, Omaha, Neb.

Digitized by Google

CENTRAL AND SOUTH AMERICAN TELEGRAPH COMPANY.

CAPITAL: 5,000,000 dols.

Directors:

EDWARD D. ADAMS. WM. G. HAMILTON. THEO. J. DE SABLA.
ERNESTO G. FABBRI. J. PIERPONT MORGAN. J. A. SCRYMSER.
MICHAEL P. GRACE. ALFRED PELL. HON. RICH. W. THOMPSON.

Officers:

JAMES A. SCRYMSER, *President.*
WILLIAM G. HAMILTON, *Vice-President.*

Secretary. JAMES R. BEARD. *Auditor.* BERNHARD SCHULZE. *Treasurer.* SAM. C. BLACKWELL.

General Manager Mex. Tel. Co. J. R. FRANCE. *General Manager Central & South American Tel. Co.* J. B. STEARNS.

General Offices:
37 & 39 WALL STREET, NEW YORK CITY.

TARIFFS:

[The operations of this Company extend over 3,200 miles of submarine cable and 300 miles of land line, conneeting exclusively with 2,750 miles of submarine cable and 20,000 miles of wire in Mexico, Central and South America.]

Messages for places in Mexico, Central & South America will be accepted at all the offices of the Western Union Telegraph Co., to be transmitted from Galveston (Texas) *via* the lines of the Mexican Telegraph Co., at the following rates, per word. The name of the place from which Messages originate is transmitted free of charge.

From all places in the United States, excepting Louisiana and Texas, to	Rate per word.
MEXICO—	
Goatzocoalcos	$0 62
Salina Cruz	0 72
SALVADOR, GUATEMALA, HONDURAS—	
Libertad	75
To all places beyond Libertad in Salvador, Guatemala and Honduras, add 5 cents per word in addition to the rate to Libertad.	
NICARAGUA, COSTA RICA—	
San Juan del Sur	1 00
To all places beyond San Juan del Sur in Nicaragua and Costa Rica, add 5 cents per word in addition to the rate to San Juan del Sur.	
U.S. COLOMBIA—	
Panama	1 37
Colon	1 42
Buenaventura	1 52
To all places beyond Buenaventura in U. S. Colombia, add 5 cents per word in addition to the rate to Buenaventura.	
ECUADOR—	
St. Elena	1 77
Guayaquil	1 77
PERU—	
Payta	1 92
Callao	2 17
Lima	2 17
Mollendo	2 47
Arica	2 52
Iquique	2 57
BOLIVIA—	
Antofagasta	2 72
CHILI—	
Valdeca	2 82
Seren	2 02
Valparaiso	3 07

From all places in Louisiana & Texas, except Galveston, from which place deduct 6c. from following rates to	Rate per word.
MEXICO—	
Goatzacoalcos	$0 56
Salina Cruz	0 66
SALVADOR, GUATEMALA, HONDURAS—	
Libertad	0 69
To all places beyond Liberted in Salvador, Guatemala and Honduras, add 5 cents per word in addition to the rate to Libertad.	
NICARAGUA, COSTA RICA—	
San Juan del Sur	0 94
To all places beyond San Juan del Sur in Nicaragua and Costa Rica, add 5 cents per word in addition to the rate to San Juan del Sur.	
U.S. COLOMBIA—	
Panama	1 31
Colon	1 36
Buenaventura	1 46
To all places beyond Buenaventura in U. S. Columbia, add 5 cents per word in addition to the rate to Buenaventura.	
ECUADOR—	
St. Elena	1 71
Guayaquil	1 71
PERU—	
Payta	1 86
Callao	2 11
Lima	2 11
Mollendo	2 41
Arica	2 46
Iquique	2 51
BOLIVIA—	
Antofagasta	2 66
CHILI—	
Caldera	2 76
Serena	2 86
Valparaiso	3 01

For rates to places in Central & South America other than those above, apply at the offices of the Western Union Telegraph Co.

Digitized by Google

MEXICAN TELEGRAPH COMPANY.

CAPITAL: $1,200,000.

Directors.

JOHN E. ALEXANDRE. WM. G. HAMILTON. J. PIERPOINT MORGAN.
E. E. CHASE. HENRY. L. HIGGINSON. ALFRED PELL.
JAS. K. GRACIE. ROBERT B. MINTURN. JAS. A. SCRYMSER.

TARIFFS.

Messages will be accepted for transmission at all the Western Union Telegraph Offices to be transmitted from Galveston (Texas) *via* the lines of the Mexican Telegraph Co. to Tampico, Vera Cruz, & City of Mexico.

RATES FOR MESSAGES.	Ten Words or less, Date, Address and Signature Free.	Each Extra Word.
From any point in the United States East of the Rocky Mountains except Texas and Louisiana		
To Tampico	$3 75	$0 33
Vera Cruz	4 75	43
City Mexico	5 25	48
From any point in the United States West of the Rocky Mountains		
To Tampico	4 00	35
Vera Cruz	5 00	45
City Mexico	5 50	50
From any point in Texas or Louisiana except Galveston		
To Tampico	3 10	29
Vera Cruz	4 10	39
City Mexico	4 60	44
From Galveston		
To Tampico	2 50	25
Vera Cruz	3 50	35
City Mexico	4 00	40

For rates to places in Mexico other than those above, apply at the Offices of the Western Union Telegraph Company.

August, 1882. **JAMES A. SCRYMSER.**
President.

General Offices:
37 and 39, Wall Street, New York.

COMPANIA ELECTRICA DE CUBA.

Presidents:—

Honorario Exemo Sr. General Martinez Campos, Madrid, Spain.
Genl. Anson Stager, New York. T. M. Delano, New York.

Secretary and Treasurer:—G. M. Philps, New York.

JUNTA CONSULTIVA DE LA HABANA—VOCALES.

Tilas, Sr. Fernand.
Barbon, Sr. Jos.
Haro, Sr. Ramon de.
Bustamante, Sr. D. M.
Ilmendoux, Sr. Joaquin.
Morzan, Sr. Angel.
Butler, V. T., *Administrador.*
Gardner, M. S., *Ingeniero.*
Barbon, T. Ca., *Banqueros.*
Reilly, O., *Centro Telephonico*, num. 5, Habana, Cuba.

CANADIAN TELEGRAPH COMPANIES. (GOVERNMENT LINES).

Superintendents.

J. WILSON, British Columbia. J. A. Le BOURDIS, Anticosti.
AUGUSTIN LABOURDIS, Magdalen Islands. H. CHIPMAN, Grand Manan & Campobello, N.B.

District Managers:

GEORGE H. ASHING, Eastport (repeating office connected with W. U. Tel. Co.).
GEORGE W. MABER, Welch Pool, Camppobello.
Miss CLARA DOGGETT, Flagg's Cover, Grand Manan.
W. A. FRASER, Esq., Woodward's Cover, Grand Manan.
Miss JOSIE CRONK, Grand Harbour, Grand Manan.
Miss LOUISA FRYE, Seal Cover, Grand Manan.
WOODWARD M'LAUGHLIN, South-West Head.

Digitized by Google

MUTUAL UNION TELEGRAPH COMPANY

AND CONNECTING LINES.

MAIN OFFICERS.

N. HUCKER, Manager. H. D. REYNOLDS, Chief Officer.

G. H. USHER, Night Chief.

CENTRAL WHARF OFFICER.

J. W. LAPEY, Manager.

MANAGERS, SUPERINTENDENTS, &c.

Adams, C. C., *Manager*, Pittsburgh, Pa.
Applegale, E. W., *Chief Operator*, Washington, D.C.
Ayers, A., *Chief Operator*, Cincinnati, Ohio.
Bauer, A. H., Baltimore, Md.
Callum, R. G., *Manager*, Washington, D.C.
Conner, F. J., *Chief Operator*, Baltimore, Md.
Hucker, N., *Manager*, Buffalo, New York.
Hughes, C. D., *Night Chief*, Baltimore, Md.
Lawler, J. A., *Manager*, Cincinnati, Ohio.
McMullen, J., *Night Chief*, Washington, D.C.
Reynolds, H., *Chief Operator*, Buffalo, N.Y.
Rider, E., *Night Chief*, Cincinnati, Ohio.
Usher, E., *Night Chief*, Buffalo, New York.
Van Duser, M., *Superintendent*, Cleveland, Ohio.

EXECUTIVE OFFICE:—

No. 135, BROADWAY, NEW YORK.

J. G. MOORE, President. CHAS. F. PECK, Secretary.

T. C. PURDY, General Manager.

THE CENTRAL AMERICAN TELEGRAPH & TELEPHONE COMPANY.

CAPITAL $100,000.

Shares $10 each. Full paid up and non-accessible.

President:—John Turner. Secretary and Treasurer:—John P. Loring.

This Company has acquired and *owns all* the telephonic rights formerly the property of the American Bell Telephone Company, Continental Telephone Company and the Tropical American Telephone Company, Limited, in Central America and Panama.

The Company BUYS its telephones and transmitters, and thereby avoids paying Royalties.

A limited number of the shares of the stock is offered for sale at $5 per share.

Address:—

JOHN P. LORING, Treasurer,

Sears' Building, Boston, Mass.

MEXICAN TELEPHONE COMPANY.

Manager—G. L. Wiley, City of Mexico.

Digitized by Google

American Bell Telephone Companies.

EXCHANGES.

NAME AND ADDRESS.	LOCATION OF EXCHANGE.	
Allaire & Reyburn	Peoria	Ill.
Allentown Telephone Exchange	Allentown	Penn.
American Bell Telephone Exchange of	Jamestown	N. Y.
" " " " "	Jamestown	N. Y.
American District Telegraph Company of	Mayville	N. Y.
" " " " "	Forestville	N. Y.
Erie, Penn., Limited	Erie	Penn
American District Telegraph Company	Louisville	Ky.
" " " " "	Jeffersonville	Ind.
" " " " "	New Albany	Ind.
American District Telegraph Company	Syracuse	N. Y.
	Fayetteville	N. Y.
American District Telegraph Company of	Utica	N. Y.
Ames and Nevada Telephone Company, The	Nevada	Iowa.
Atchison Telephone Exchange Co., The	Atchison	Kan.
Ayer Telephone Exchange Company	Ayer	Mass.
Bailey, C. H.	New Castle	Ind.
	Rushville	Ind.
Balch & Root	De Witt	Iowa
	Morrison	Ill.
" "	Mount Carroll	Ill.
Beach & Hunt	Winsted	Conn.
Beatrice Electric Company	Beatrice	Neb.
Bell Telephone Company of Buffalo, The	Akron	N. Y.
	Albion	N. Y.
" " " " " " "	Batavia	N. Y.
" " " " " " "	Buffalo	N. Y.
" " " " " " "	Geneseo	N. Y.
" " " " " " "	Rochester	N. Y.
" " " " " " "	Lockport	N. Y.
" " " " " " "	Niagara Falls	N. Y.
" " " " " " "	Warsaw	N. Y.
Bell Telephone Company of Missouri, The	St. Louis	Mo.
	Kansas City	Mo.
" " " " " "	Independence	Mo.
Bell Telephone Company of Philadelphia	Philadelphia	Penn.
	Chester	Penn.
" " " " " "	Pottstown	Penn.
" " " " " "	Wilmington	Del.
" " " " " "	Atlantic City	N. J.
" " " " " "	Trenton	N. J.
Bell Telephone Company of New Mexico	Albuquerque	New Mex.
	Las Vegas	New Mex.
" " " " " " "	Santa Fé	New Mex.
" " " " " " "	Silver City	New Mex.
" " " " " " "	Socorro	New Mex.
Bingham, C. C.	St. Johnsbury	Vt.
Black Hills Telephone Exchange Company,	Deadwood	D. T.
Boston and Northern Telephone Company	Gloucester	Mass.
	Haverhill	Mass.
" " " " " "	Lawrence	Mass.
" " " " " "	Lynn	Mass.
" " " " " "	Newburyport	Mass.
" " " " " "	Salem	Mass.

Digitized by Google

EXCHANGES—*continued.*

NAME AND ADDRESS.	LOCATION OF EXCHANGE.
Boston and Northern Telephone Company	Lowell, Mass.
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
Brainerd Telegraph and Telephone Co., The	Brainerd, Minn.
Brattleboro' Telephone Exchange	Brattleboro', Vt.
Brockton Telephone Company	Brockton, Mass.
Bross, Chas. E.	Madison, Wis.
Brown, A. C.	Montpelier, Vt.
Bundy, C. H.	Middletown, O.
Burlington District Telephone Co.,	Burlington, Vt.
Burlington Telephone Company	Burlington, Iowa.
Central District and Printing Telegraph Co., The	Pittsburgh, Penn.
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
Central Ohio Telephone Company, The	Chillicothe, Ohio.
,, ,, ,, ,,	,, ,,
Central Pennsylvania Telephone and Supply Co.,	Williamsport, Penn.
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
,, ,, ,, ,,	,, ,,
Central Telephone Company	Chicago, Ill.
,, ,, ,,	,, ,,
,, ,, ,,	,, ,,
,, ,, ,,	,, ,,
,, ,, ,,	,, ,,
,, ,, ,,	,, ,,
,, ,, ,,	,, ,,
,, ,, ,,	,, ,,
,, ,, ,,	,, ,,
,, ,, ,,	,, ,,
,, ,, ,,	,, ,,
,, ,, ,,	,, ,,

LOCATION OF EXCHANGE.	
Claremont	N.H.
Derry	N.H.
Dover	N.H.
Exeter	N.H.
Franklin	N.H.
Great Falls	N.H.
Lisbon and Littleton	N.H.
Nashua	N.H.
Portsmouth	N.H.
Bellows Falls	Vt.
Randolph	Vt.
Woodstock	Vt.
Brainerd	Minn.
Brattleboro'	Vt.
Wilmington	Vt.
Brockton	Mass.
Madison	Wis.
Montpelier	Vt.
Morrisville	Vt.
Middletown	Ohio.
Lebanon	Ohio.
Burlington	Vt.
Burlington	Iowa.
Ft. Madison	Iowa.
Pittsburgh	Penn.
Allegheny City	Penn.
Franklin	Penn.
McKeesport	Penn.
Meadville	Penn.
Newcastle	Penn.
Titusville	Penn.
Oil City	Penn.
East Liverpool	Ohio.
Bellaire	Ohio.
Marietta	Ohio.
Martins Ferry	Ohio.
Stubenville	Ohio.
Parkersburgh	W. Va.
Wheeling	W. Va.
Circleville	Ohio.
Chillicothe	Ohio.
Delaware	Ohio.
Altoona	Penn.
Bellefonte	Penn.
Bloomsburg	Penn.
Clearfield	Penn.
Driftwood	Penn.
Emporium	Penn.
Huntingdon	Penn.
Lewistown	Penn.
Lock Haven	Penn.
Mifflintown	Penn.
Milton	Penn.
Phillipsburgh	Penn.
Renovo	Penn.
Shamokin	Penn.
Williamsport	Penn.
Alton	Ill.
Beardstown	Ill.
Bloomington	Ill.
Canton	Ill.
Cairo	Ill.
Carthage	Ill.
Centralia	Ill.
Champaign	Ill.
Danville	Ill.
Decatur	Ill.
Dixon	Ill.
Galena	Ill.
Galesburgh	Ill.
Galva	Ill.

Digitized by Google

EXCHANGES—*continued.*

NAME AND ADDRESS.	LOCATION OF EXCHANGE.
Central Telephone Company .. .. .. Chicago, Ill.	Geneseo .. .. .. Ill.
,, ,, ,, .. ,, ,,	Greenville .. .. .. Ill.
,, ,, ,, .. ,, ,,	Jacksonville .. .. .. Ill.
,, ,, ,, . ,, ,,	Kankakee .. .. .. Ill.
,, ,, ,, ,, ,,	Lincoln .. .. .. Ill.
,, ,, ,, ,, ,,	Litchfield .. .. .. Ill.
,, ,, ,, . ,, ,,	Macomb .. .. .. Ill.
,, ,, ,, . ,, ,,	Marshall .. .. .. Ill.
,, ,, ,, . ,, ,,	Mattoon .. .. .. Ill.
,, ,, ,, . ,, ,,	Mendota .. .. .. Ill.
,, ,, ,, .. ,, ,,	Monmouth .. .. .. Ill.
,, ,, ,, .. ,, ,,	Monticello .. .. .. Ill.
,, ,, ,, . ,, ,,	Mount Carmel .. .. Ill.
,, ,, ,, ,, ,,	Nashville .. .. .. Ill.
,, ,, ,, . ,, ,,	Pana .. .. Ill.
,, ,, ,, .. ,, ,,	Paris .. .. Ill.
,, ,, ,, ,, ,,	Pittsfield .. .. .. Ill.
,, ,, ,, . ,, ,,	Polo .. .. Ill.
,, ,, ,, . ,, ,,	Pontiac .. .. .. Ill.
,, ,, ,, . ,, ,,	Princeton .. .. .. Ill.
,, ,, ,, .. ,, ,,	Shelbyville .. .. .. Ill.
,, ,, ,, . ,, ,,	Springfield .. .. .. Ill.
,, ,, ,, . ,, ,,	Streator .. .. .. Ill.
,, ,, ,, . ,, ,,	Taylorville .. .. .. Ill.
,, ,, ,, . ,, ,,	Anderson .. .. .. Ind.
,, ,, ,, . ,, ,,	Bedford .. .. .. Ind.
,, ,, ,, . ,, ,,	Bloomington .. .. .. Ind.
,, ,, ,, ,, ,,	Brazil .. .. Ind.
,, ,, ,, .. ,, ,,	Cambridge City .. .. Ind.
,, ,, ,, .. ,, ,,	Crawfordsville .. .. Ind.
,, ,, ,, ,, ,,	Delphi .. .. Ind.
,, ,, ,, .. ,, ,,	Frankfort .. .. .. Ind.
,, ,, ,, . ,, ,,	Franklin .. .. .. Ind.
,, ,, ,, . ,, ,,	Greencastle .. .. .. Ind.
,, ,, ,, ,, ,,	Greenfield .. .. .. Ind.
,, ,, ,, ,, ,,	Hartford City .. .. Ind.
,, ,, ,, . ,, ,,	La Porte .. .. .. Ind.
,, ,, ,, .. ,, ,,	Lebanon .. .. .. Ind.
,, ,, ,, . ,, ,,	Madison .. .. .. Ind.
,, ,, ,, ,, ,,	Martinsville .. .. .. Ind.
,, ,, ,, . ,, ,,	Noblesville .. .. .. Ind.
,, ,, ,, . ,, ,,	Paoli .. .. Ind.
,, ,, ,, .. ,, ,,	Richmond .. .. .. Ind.
,, ,, ,, .. ,, ,,	Salem .. .. Ind.
,, ,, ,, .. ,, ,,	Spencer .. .. .. Ind.
,, ,, ,, ,, ,,	Terre Haute .. .. .. Ind.
,, ,, ,, . ,, ,,	Williamsport .. .. .. Ind.
,, ,, ,, . ,, ,,	Defiance .. .. .. Ohio.
,, ,, ,, .. ,, ,,	Sandusky .. .. .. Ohio.
Cheshire County Telephone Company .. Keene, N.H.	Keene .. .. N. H.
Chicago Telephone Company	Aurora .. .. .. Ill.
.. .. Chicago, Ill.	Chicago .. .. .. Ill.
,, ,, ,, .. ,, ,,	Elgin .. .. Ill.
,, ,, ,, .. . ,, ,,	Joilet .. .. Ill.
Citizens' Bell Telephone Company of Union City, .. Ind.	Union City .. .. .. Ind.
City and Suburban Telegraph Association, The	Cincinnati .. .. .. Ohio.
Cincinnati, O.	Hamilton .. .. .. Ohio.
,, ,, . ,, ,,	Covington .. .. .. Ky.
City Telephone Exchange Company, The, Park City, Utah.	Park City .. .. .. Utah.
Clapp, Clement L. .. .. Carrolton, Ill.	Carrollton .. .. .. Ill.
Cleveland Telephone Company, The .. .. Cleveland, O.	Cleveland .. .. .. Ohio.
Clinton and Lyons Bell Telephone Company .. Clinton, Ia.	Clinton .. .. .. Iowa.
Clute & Cortright .. .. Mauch Chunk, Penn.	Mauch Chunk .. .. Penn.
Clute, Homer A. and Horace A.	Bethlehem .. .. .. Penn.
Mauch Chunk, Penn.	Hazelton .. .. .. Penn.
Colorado Telephone Company, The	Denver .. .. .. Col.
Denver, Col.	Boulder .. .. .. Col.
,, ,, ,, ,, ,,	Central City .. .. .. Col.
,, ,, ,, ,, ,,	Colorado Springs .. .. Col.
,, ,, ,, ,, ,,	Golden .. .. .. Col.
,, ,, ,, ,, ,,	Mineral City .. .. .. Col.

Digitized by Google

EXCHANGES—*continued.*

NAME AND ADDRESS.	LOCATION OF EXCHANGE.
Colorado Telephone Company, The .. Denver, Col.	Pueblo .. .. .. Col.
,, ,, ,, ,, ,,	Silver Cliff .. .. .. Col.
Columbia Telephone Exchange .. .. Columbia, Penn.	Columbia .. .. .. Penn.
Commercial Telephone Company .. .. Albany, N.Y.	Albany .. .. .. N. Y.
(*Sub-Licensees*)	
Amsterdam Telegraph and Telephone Company ..	Amsterdam .. .. .. N. Y.
Catskill Telegraph and Telephone Company ..	Athens .. .. .. N. Y.
,, ,, ,, ,, ,,	Catskill .. .. .. N. Y.
Fulton County Telegraph and Telephone Company	Gloversville .. .. .. N. Y.
,, ,, ,, ,, ,,	Johnstown .. .. .. N. Y.
Hudson Telegraph and Telephone Company ..	Chatham .. .. .. N. Y.
,, ,, ,, ,, ,,	Hudson .. .. .. N. Y.
,, ,, ,, ,, ,,	Valatia .. .. .. N. Y.
New York & Vermont Telegraph & Telephone Co.	Hoosac Falls .. .. .. N. Y.
Schenectady Telegraph and Telephone Company ..	Schenectady .. .. .. N. Y.
Union Telegraph and Telephone Company	Ballston .. .. .. N. Y.
,, ,, ,, ,, ,,	Saratoga .. .. .. N. Y.
Comstock, L. W. .. .. Columbus, Ind.	Columbus .. .. .. Ind.
Connecticut Telephone Company, The	Birmingham .. .. .. Conn.
New Haven, Conn.	Bridgeport .. .. .. Conn.
,, ,, ,, ,, ,,	Essex .. .. .. Conn.
,, ,, ,, ,, ,,	Guilford .. .. .. Conn.
,, ,, ,, ,, ,,	Hartford .. .. .. Conn.
,, ,, ,, ,, ,,	Killingly .. .. .. Conn.
,, ,, ,, ,, ,,	Litchfield .. .. .. Conn.
,, ,, ,, ,, ,,	Meriden .. .. .. Conn.
,, ,, ,, ,, ,,	Middletown .. .. .. Conn.
,, ,, ,, ,, ,,	New Britain .. .. .. Conn.
,, ,, ,, ,, ,,	New Haven .. .. .. Conn.
,, ,, ,, ,, ,,	New London .. .. .. Conn.
,, ,, ,, ,, ,,	New Milford .. .. .. Conn.
,, ,, ,, ,, ,,	Norwich .. .. .. Conn.
,, ,, ,, ,, ,,	Putnam .. .. .. Conn.
,, ,, ,, ,, ,,	Stafford .. .. .. Conn.
,, ,, ,, ,, ,,	Stamford .. .. .. Conn.
,, ,, ,, ,, ,,	Stonington .. .. .. Conn.
,, ,, ,, ,, ,,	Vernon .. .. .. Conn.
,, ,, ,, ,, ,,	Waterbury .. .. .. Conn.
,, ,, ,, ,, ,,	Willimantic .. .. .. Conn.
Cozzens & Bull .. .. Newport, R.I.	Newport .. .. .. R. I.
Creston Telephone Exchange .. .. .. Creston, Iowa.	Creston .. .. .. Iowa.
Cumberland Telephone Company	Columbia .. .. .. Tenn.
Evansville, Ind.	Jackson .. .. .. Tenn.
,, ,, ,, ,, ,,	Nashville .. .. .. Tenn.
Danbury Telephone Despatch Co., The .. Danbury, Conn	Danbury .. .. .. Conn.
Danville Telephone Company, The .. Danville, Ind.	Danville .. .. .. Ind.
Dieter, Killits & Company .. Washington C. H., Ohio.	Washington, C.H. .. .. Ohio.
Dunkirk Telephone Exchange, The .. Dunkirk, N. Y.	Dunkirk .. .. .. N. Y.
Eastern Pennsylvania Telephone Company	Lebanon .. .. .. Penn.
Reading, Penn.	Pottsville .. .. .. Penn.
,, ,, ,, ,, ,,	Reading .. .. .. Penn.
Easton Telephone Company, (Limited), The, Easton, Penn.	Easton .. .. .. Penn.
East Tennessee Telephone Company	Chattanooga .. .. .. Tenn.
New York, N. Y.	Clarksville .. .. .. Tenn.
,, ,, ,, ,, ,, ,,	Knoxville .. .. .. Tenn.
,, ,, ,, ,, ,, ,,	Frankfort .. .. .. Ky.
,, ,, ,, ,, ,, ,,	Lexington .. .. .. Ky.
,, ,, ,, ,, ,, ,,	Maysville .. .. .. Ky.
,, ,, ,, ,, ,, ,,	Paducah .. .. .. Ky.
Elmira Bell Telephone Exchange .. Elmira, N. Y.	Elmira .. .. .. N. Y.
Empire State Telephone and Telegraph Co., The	Auburn .. .. .. N. Y.
Auburn, N. Y.	Canandaigua .. .. .. N. Y.
,, ,, ,, ,, ,, ,,	Fulton .. .. .. N. Y.
,, ,, ,, ,, ,, ,,	Geneva .. .. .. N. Y.
,, ,, ,, ,, ,, ,,	Oswego .. .. .. N. Y.
,, ,, ,, ,, ,, ,,	Waterloo .. .. .. N. Y.
Evansville Telephone Exchange of Evansville, Ind., The ..	Boonville .. .. .. Ind.
Evansville, Ind.	Evansville .. .. .. Ind.
,, ,, ,, ,, ,, ,,	Jasper .. .. Ind.
,, ,, ,, ,, ,, ,,	Mount Vernon .. .. Ind.
,, ,, ,, ,, ,, ,,	Princeton .. .. .. Ind.

Digitized by Google

EXCHANGES—*continued.*

NAME AND ADDRESS.	LOCATION OF EXCHANGE.	
Evansville Telephone Exchange of Evansville, Ind, The .. Evansville, Ind.	Rockport	Ind.
,, ,, ,, ,, ,, ,,	Tell City	Ind.
,, ,, ,, ,, ,, ,,	Henderson	Ky.
,, ,, ,, ,, ,, ,,	Madisonville	Ky.
,, ,, ,, ,, ,, ,,	Morganfield	Ky.
,, ,, ,, ,, ,, ,,	Owensboro	Ky.
Fearis, James H. .. .. Connersville, Ind.	Connersville	Ind.
Fergus Falls Telephone Exchange Co., The .. .. .. Fergus Falls, Minn.	Fergus Falls	Minn.
Freeport Telephone Exchange Company .. Freeport, Ill.	Freeport	Ill.
Glenwood Telephone Exchange Company .. Glenwood, Ia.	Glenwood	Iowa.
Goodall, F. W. .. .. Bennington, Vt.	Bennington	Vt.
Grand Forks Telephone Company, The, Grand Forks, Dak.	Grand Forks	Dak.
Granite State Telephone Company, The Manchester, N. H.	Manchester	N. H.
Greene, John J. .. .. Hope Valley, R. I.	Hope Valley	R. I.
Hampden Telephone Company .. .. Springfield, Mass.	Springfield }	Mass.
	Holyoke }	Mass.
	Chicopee }	Mass.
Hanover Telephone Exchange .. .. Hanover, Penn.	Hanover	Penn.
Haskins, C. H. .. .. Milwaukee, Wis.	Appleton	Wis.
	Chippewa Falls & Eau Claire	Wis.
,, ,, ,, ,,	Fond du Lac	Wis.
,, ,, ,, ,,	Janesville	Wis.
,, ,, ,, ,,	La Crosse	Wis.
,, ,, ,, ,,	Menasha and Neenah ..	Wis.
,, ,, ,, ,,	Oshkosh	Wis.
Haskins, C. H. & Co. .. .. Milwaukee, Wis.	Beloit	Wis.
	Green Bay	Wis.
,, ,, ,, ,,	Manitowoc	Wis.
,, ,, ,, ,,	Marinette	Wis.
,, ,, ,, ,,	Racine	Wis.
,, ,, ,, ,,	Sheboygan	Wis.
,, ,, ,, ,,	Wausau	Wis.
Hastings Telephone Exchange .. .. Hastings, Neb.	Hastings	Neb.
Haven, J. M. .. .. Rutland, Vt.	Rutland	Vt.
Hazard, Rowland G., 2d.. .. .. Peacedale, R. I.	Narragansett Pier	R. I.
Herkimer Telegraph and Telephone Co., The, Utica, N. Y.	Little Falls	N. Y.
Hickok, J. S. .. .. Vergennes, Vt.	Vergennes	Vt.
Hot Springs Telephone Company .. Hot Springs, Ark.	Hot Springs	Ark.
Hudson River Telephone and Telegraph Co., The .. .. New York, N. Y.	Fishkill	N. Y.
	Middletown	N. Y.
,, ,, ,, ,, ,,	Newburgh	N. Y.
,, ,, ,, ,, ,,	Port Jervis	N. Y.
,, ,, ,, ,, ,,	Poughkeepsie	N. Y.
Idaho Telephone and Telegraph Company .. .. .. Ogden City, U. T.		
Iowa and Minnesota Telephone Company .. .. .. Dubuque, Iowa.	Charles City	Iowa.
	Cresco	Iowa.
,, ,, ,, ,, ,, ,,	Decorah	Iowa.
,, ,, ,, ,, ,, ,,	Eldora, Ackley, & Iowa Falls	Iowa.
,, ,, ,, ,, ,, ,,	Emmetsburgh	Iowa.
,, ,, ,, ,, ,, ,,	Garner	Iowa.
,, ,, ,, ,, ,, ,,	Hampton	Iowa.
,, ,, ,, ,, ,, ,,	Lansing	Iowa.
,, ,, ,, ,, ,, ,,	Le Mars	Iowa.
,, ,, ,, ,, ,, ,,	Manchester	Iowa.
,, ,, ,, ,, ,, ,,	Mason City	Iowa.
,, ,, ,, ,, ,, ,,	McGregor	Iowa.
,, ,, ,, ,, ,, ,,	Orange City	Iowa.
,, ,, ,, ,, ,, ,,	Osage	Iowa.
,, ,, ,, ,, ,, ,,	Sheldon	Iowa.
,, ,, ,, ,, ,, ,,	Sioux City	Iowa.
,, ,, ,, ,, ,, ,,	Spencer	Iowa.
,, ,, ,, ,, ,, ,,	Waverly	Iowa.
,, ,, ,, ,, ,, ,,	Webster City	Iowa.
,, ,, ,, ,, ,, ,,	West Union and Fayette ..	Iowa.
Iowa Telephone and Telegraph Company .. .. .. Cedar Rapids, Ia.	Anamosa	Iowa.
	Albia	Iowa.
,, ,, ,, ,, ,, ,,	Atlantic	Iowa.
,, ,, ,, ,, ,, ,,	Bloomfield	Iowa.

Digitized by Google

EXCHANGES—*continued.*

NAME AND ADDRESS.	LOCATION OF EXCHANGE.	
Iowa Telephone and Telegraph Co. .. .. Cedar Rapids, Ia.	Boone	Iowa.
,, ,, ,, ,, ,, ,,	Centerville	Iowa.
,, ,, ,, ,, ,, ,,	Chariton	Iowa.
,, ,, ,, ,, ,, ,,	Dakotah	Iowa.
,, ,, ,, ,, ,, ,,	Fairfield	Iowa.
,, ,, ,, ,, ,, ,,	Fort Dodge	Iowa.
,, ,, ,, ,, ,, ,,	Guthrie Centre	Iowa.
,, ,, ,, ,, ,, ,,	Harlan	Iowa.
,, ,, ,, ,, ,, ,,	Independence	Iowa.
,, ,, ,, ,, ,, ,,	Indianola	Iowa.
,, ,, ,, ,, ,, ,,	Iowa City	Iowa.
,, ,, ,, ,, ,, ,,	Knoxville	Iowa.
,, ,, ,, ,, ,, ,,	Marengo	Iowa.
,, ,, ,, ,, ,, ,,	Montezuma	Iowa.
,, ,, ,, ,, ,, ,,	Mount Pleasant	Iowa.
,, ,, ,, ,, ,, ,,	Muscatine	Iowa.
,, ,, ,, ,, ,, ,,	Newton	Iowa.
,, ,, ,, ,, ,, ,,	Osceola	Iowa.
,, ,, ,, ,, ,, ,,	Oskaloosa	Iowa.
,, ,, ,, ,, ,, ,,	Sigourney	Iowa.
,, ,, ,, ,, ,, ,,	Tipton	Iowa.
,, ,, ,, ,, ,, ,,	Toledo	Iowa.
,, ,, ,, ,, ,, ,,	Vinton	Iowa.
,, ,, ,, ,, ,, ,,	Wapello	Iowa.
,, ,, ,, ,, ,, ,,	Washington	Iowa.
,, ,, ,, ,, ,, ,,	Waterloo	Iowa.
,, ,, ,, ,, ,, ,,	Winterset	Iowa.
Ithaca Telephone Exchange, The .. .. Ithaca, N. Y.	Ithaca	N. Y.
Jackson County Bell Telephone Company, ... Maquoketa, Ia.	Bellevue	Iowa.
	Maquoketa	Iowa.
,, ,, ,, ,, ,,	Sabula	Iowa.
Johnson, L. .. .. Vincennes, Ind.	Olney	Ill.
	Bloomfield	Ind.
,, ,, ,,	Greensburgh	Ind.
,, ,, ,,	Seymour	Ind.
,, ,, ,,	Shelbyville	Ind.
,, ,, ,,	Vincennes	Ind.
,, ,, ,,	Washington	Ind.
Korty, L. H. & Company .. .. Omaha, Neb.	Blair	Neb.
	Brownville	Neb.
,, ,, ,, ,, ,,	Columbus	Neb.
,, ,, ,, ,, ,,	Crete	Neb.
,, ,, ,, ,, ,,	David City	Neb.
,, ,, ,, ,, ,,	Falls City	Neb.
,, ,, ,, ,, ,,	Fremont	Neb.
,, ,, ,, ,, ,,	Geneva	Neb.
,, ,, ,, ,, ,,	Grand Island	Neb.
,, ,, ,, ,, ,,	Kearney	Neb.
,, ,, ,, ,, ,,	Plattsmouth	Neb.
,, ,, ,, ,, ,,	Schuyler	Neb.
,, ,, ,, ,, ,,	Seaward	Neb.
,, ,, ,, ,, ,,	St. Paul	Neb.
,, ,, ,, ,, ,,	Tecumseh	Neb.
,, ,, ,, ,, ,,	Wahoo	Neb.
Lambertville Telephone Exchange .. .. Camden, N. J.	Lambertville	N. J.
Leadville Telephone Company, The, .. Leadville, Col.	Leadville	Col.
Leavenworth Telephone Exchange Company, The, ... Leavenworth, Kan.	Leavenworth	Kan.
Lincoln Telephone Exchange Co. .. Lincoln, Neb.	Lincoln	Neb.
Lingle, George R. .. .. .. Clinton, Mo.	Clinton	Mo.
Little Rock Telephone Exchange .. Lincoln, Neb.	Little Rock	Ark.
Loomis & McDaniel .. .. .. Carthage, Mo.	Joplin	Mo.
Louisiana Telephone Co. .. .. New Orleans, La.	New Orleans	La.
	Shreveport	La.
,, ,, ,, ,, ,,	Aberdeen	Miss
,, ,, ,, ,, ,,	Columbus	Miss.
,, ,, ,, ,, ,,	Greenville	Miss.
,, ,, ,, ,, ,,	Jackson	Miss.
,, ,, ,, ,, ,,	Meridian	Miss.
,, ,, ,, ,, ,,	Natchez	Miss.
,, ,, ,, ,, ,,	Vicksburg	Miss.

Digitized by Google

EXCHANGES—*continued.*

NAME AND ADDRESS.	LOCATION OF EXCHANGE.	
Marshalltown Telephone Company, .. Dubuque, Iowa,	Marshalltown	Iowa.
Massachusetts Telephone Company	Athol	Mass.
South Framingham, Mass.	Brookfield	Mass.
,, ,, ,, ,,	Clinton	Mass.
,, ,, ,, ,,	Framingham	Mass.
,, ,, ,, ,,	Gardener and Winchendon ..	Mass.
,, ,, ,, ,,	Holliston	Mass.
,, ,, ,, ,,	Hopkinton	Mass.
,, ,, ,, ,,	Marlboro'	Mass.
,, ,, ,, ,,	Milford	Mass.
,, ,, ,, ,,	Natick	Mass.
,, ,, ,, ,,	Orange	Mass.
,, ,, ,, ,,	Palmer	Mass.
,, ,, ,, ,,	Southbridge	Mass.
,, ,, ,, ,,	Spencer	Mass.
,, ,, ,, ,,	Webster	Mass.
,, ,, ,, ,,	Westboro'	Mass.
Memphis Telephone and Electric Company, Memphis, Tenn.	Memphis	Tenn.
Merchants' Telephone and Electric Company of Kansas and Missouri, The		
Kansas City, Mo.	Caldwell	Kan.
,, ,, ,, ,, ,, ,, ,, ,,	Emporia	Kan.
,, ,, ,, ,, ,, ,, ,, ,,	Fort Scott	Kan.
,, ,, ,, ,, ,, ,, ,, ,,	Lawrence	Kan.
,, ,, ,, ,, ,, ,, ,, ,,	Olathe	Kan.
,, ,, ,, ,, ,, ,, ,, ,,	Ottawa	Kan.
,, ,, ,, ,, ,, ,, ,, ,,	Parsons	Kan.
,, ,, ,, ,, ,, ,, ,, ,,	Wellington	Kan.
,, ,, ,, ,, ,, ,, ,, ,,	Wichita	Kan.
,, ,, ,, ,, ,, ,, ,, ,,	Winfield	Kan.
Merchants' Telephone and Telegraph Company of Kansas and Missouri, The .. .. .. Kansas City, Mo.	Rich Hill	Mo.
Metropolitan Telephone and Telegraph Co., The New York, N. Y.	New York	N. Y.
(*Sub-Licensees*)		
Domestic Telegraph and Telephone Co.	Newark	N. J.
Metropolitan District Telephone Company.	Brooklyn	N. Y.
,, ,, ,, ,,	Yonkers	N. Y.
,, ,, ,, ,,	Elizabeth	N. J.
,, ,, ,, ,,	Jersey City	N. J.
,, ,, ,, ,,	New Brunswick	N. J.
,, ,, ,, ,,	Orange	N. J.
,, ,, ,, ,,	Paterson	N. J.
Staten Island Telephone Exchange Company, The ...	New Brighton	N. Y.
Midland Telephone Co.	Bluffton	Ind.
Chicago, Ill.	Elkhart	Ind.
,, ,, ,, ,, ,,	Fort Wayne	Ind.
,, ,, ,, ,, ,,	Huntington	Ind.
,, ,, ,, ,, ,,	Plymouth	Ind.
,, ,, ,, ,, ,,	Wabash	Ind.
,, ,, ,, ,, ,,	Warsaw	Ind.
,, ,, ,, ,, ,,	Alliance	Ohio.
,, ,, ,, ,, ,,	Ashtabula	Ohio.
,, ,, ,, ,, ,,	Akron	Ohio.
,, ,, ,, ,, ,,	Bellefontanie	Ohio.
,, ,, ,, ,, ,,	Canton and Masillon ..	Ohio.
,, ,, ,, ,, ,,	Columbus	Ohio.
,, ,, ,, ,, ,,	Dayton	Ohio.
,, ,, ,, ,, ,,	Delphos	Ohio.
,, ,, ,, ,, ,,	Eaton	Ohio.
,, ,, ,, ,, ,,	Fremont	Ohio.
,, ,, ,, ,, ,,	Findlay	Ohio.
,, ,, ,, ,, ,,	Fostoria	Ohio.
,, ,, ,, ,, ,,	Gallipolis	Ohio.
,, ,, ,, ,, ,,	Greenville	Ohio.
,, ,, ,, ,, ,,	Hillsborough	Ohio.
,, ,, ,, ,, ,,	Jackson	Ohio.
,, ,, ,, ,, ,,	Kenton	Ohio.
,, ,, ,, ,, ,,	Lancaster	Ohio.
,, ,, ,, ,, ,,	Lima	Ohio.
,, ,, ,, ,, ,,	Logan	Ohio.
,, ,, ,, ,, ,,	London	Ohio.

Digitized by Google

EXCHANGES—*continued.*

NAME AND ADDRESS.	LOCATION OF EXCHANGE.	
Midland Telephone Co. .. .. Chicago, Ill.	Mansfield	Ohio.
,, ,, ,, ,, ,,	Medina	Ohio.
,, ,, ,, ,, ,,	Miamisburgh	Ohio.
,, ,, ,, ,, ,,	Mount Vernon	Ohio.
,, ,, ,, ,, ,,	Newark	Ohio.
,, ,, ,, ,, ,,	Napoleon	Ohio.
,, ,, ,, ,, ,,	Pomeroy	Ohio.
,, ,, ,, ,, ,,	Ravenna	Ohio.
,, ,, ,, ,, ,,	Sidney	Ohio.
,, ,, ,, ,, ,,	Springfield	Ohio.
,, ,, ,, ,, ,,	Tiffin	Ohio.
,, ,, ,, ,, ,,	Toledo	Ohio.
,, ,, ,, ,, ,,	Troy and Piqua	Ohio.
,, ,, ,, ,, ,,	Upper Sandusky	Ohio.
,, ,, ,, ,, ,,	Urbana	Ohio.
,, ,, ,, ,, ,,	Van Wert	Ohio.
,, ,, ,, ,, ,,	Wilmington	Ohio.
,, ,, ,, ,, ,,	Wooster	Ohio.
,, ,, ,, ,, ,,	Youngstown	Ohio.
,, ,, ,, ,, ,,	Zanesville	Ohio.
Milwaukee Telephone Exchange Company, The, ... Milwaukee, Wis.	Milwaukee	Wis.
Missouri Telephone Company .. .. Indianapolis, Ind.	Canton	Mo.
,, ,, ,,	Columbia	Mo.
,, ,, ,,	Fulton	Mo.
,, ,, ,,	Hannibal	Mo.
,, ,, ,,	Jefferson City	Mo.
,, ,, ,,	Louisiana	Mo.
,, ,, ,,	Mexico	Mo.
,, ,, ,,	Moberly	Mo.
,, ,, ,,	Sedalia	Mo.
,, ,, ,,	Springfield	Mo.
,, ,, ,,	Trenton	Mo.
Mohawk Valley Telephone and Telegraph Company, The .. New York City, N. Y.	Norwich	N. Y.
,, ,, ,, ,,	Oneida	N. Y.
,, ,, ,, ,,	Oneonta	N. Y.
	Rome	N. Y.
Montana Telephone and Telegraph Company, The .. .. Ogden City, Utah.	Butte City	Montana.
	Helena	Montana.
Muncie Bell Telephone Company .. .. Muncie, Ind.	Muncie	Ind.
National Bell Telephone Co. of the State of Maine, The .. Lowell, Mass.	Augusta	Me.
	Bangor	Me.
,, ,, ,, ,, ,,	Bath	Me.
,, ,, ,, ,, ,,	Biddeford	Me.
,, ,, ,, ,, ,,	Calais	Me.
,, ,, ,, ,, ,,	Lewiston	Me.
,, ,, ,, ,, ,,	Portland	Me.
,, ,, ,, ,, ,,	Rockland	Me.
,, ,, ,, ,, ,,	Waterville	Me.
,, ,, ,, ,, ,,	Fitchburg	Mass.
,, ,, ,, ,, ,,	Lowell	Mass.
,, ,, ,, ,, ,,	Worcester	Mass.
National Capital Telephone Company, The, Washington, .. D. C.	Washington	D. C.
Nebraska City Telephone Exchange Company, The .. .. Nebraska City, Neb.	Nebraska City	Neb.
Newell, Frank A. .. .. .. Bradford, Penn.	Bradford	Penn.
,, ,, ,, ,, ,,	Richburg	N. Y.
New Hampshire Telephone Co. .. .. Salem, Mass.	Concord	N. H.
Northern Massachusetts Telephone Company, The .. .. Lowell, Mass.	Acton, Concord, Maynard	Mass.
,, ,, ,, ,, ,, ,,	Champlain	N. Y.
Northern New York Telephone and Telegraph Company ..	Malone	N. Y.
,, ,, ,, ,, Troy, N. Y.	Plattsburgh	N. Y.
,, ,, ,, ,, ,, ,,	Port Henry	N. Y.
North-western Telephone Exchange Company, The .. .. Minneapolis, Minn.	Moorhead, Fargo	Minn. Dak.
,, ,, ,, ,, ,,	Jamestown	Dak.
,, ,, ,, ,, ,,	Pembina	Dak.
,, ,, ,, ,, ,,	Crookston	Minn.

Digitized by Google

EXCHANGES—*continued.*

NAME AND ADDRESS.	LOCATION OF EXCHANGE.	
North-western Telephone Exchange Company, The .. Minneapolis, Minn.	Duluth	Minn.
,, .. ,, ,, ,, ,,	Faribault	Minn.
,, .. ,, ,, ,, ,,	St. Paul and Minneapolis ..	Minn.
,, .. ,, ,, ,, ,,	St. Vincent	Minn.
,, .. ,, ,, ,, ,,	Stillwater	Minn.
,, ,, ,, ,, ,,	Winona	Minn.
Ogden Telephone Exchange Company, Ogden City, Utah.	Brigham City	Utah.
,, ,, ,, ,, ,, ,,	Ogden City	Utah.
Ogdensburg Telephone Exchange, .. Ogdensburg, N. Y.	Ogdensburg	N. Y.
Omaha Electric Company, The.. .. .. Omoha, Neb.	Omaha	Neb.
	Council Bluffs	Iowa.
Pacific Bell Telephone Company .. .. .. San Francisco, Cal.	San Francisco	Cal.
	Sacramento	Cal.
,, ,, ,, .. ,, ,, ,, ,,	Oakland	Cal.
,, ,, ,, .. ,, .. ,, ,, ..	San José	Cal.
,, ,, ,, ,, ,, ,, ,, ,,	Portland	Oregon.
Peekskill Telephone Co.. .. .. Peekskill, N. Y.	Peekskill	N. Y.
Plymouth and Campton Telephone Exchange Co. .. .. Plymouth, N. H.	Plymouth	N. H.
Providence Telephone Company, .. Providence, R. I.	Pascoag	R. I.
,, ,, ,, ,, ,,	Providence	R. I.
Red Oak Telephone Company .. .. Red Oak, Iowa.	Red Oak	Iowa.
Reiser, Henry G... .. .. .. Marion, Ohio.	Marion	Ohio.
Rhoads, H. R., and Kinsey, L. C., Wilkesbarre, Penn.	Wilkesbarre	Penn.
Ristine, George T. .. .. Galion, O.	Bucyrus	Ohio.
	Galion..	Ohio.
Saint Albans Telephone Exchange Co., The, ... Saint Albans, Vt.	Saint Albans	Vt.
Scobell, Joseph S., ... Erie, Penn.	Corry	Penn.
Scranton Bell Telephone Company, The Scranton, Penn.	Scranton	Penn.
Shelby Telephone Company, The .. .. Shelby, O.	Shelby..	Ohio.
Southern Bell Telephone and Telegraph Company .. .. 197, Broadway, New York, N. Y.	Birmingham	Ala.
,, ,, .. ,, ,, ,, ,,	Mobile..	Ala.
,, ,, .. ,, ,, ,, ,,	Montgomery	Ala.
,, ,, .. ,, ,, ,, ,,	Selma	Ala.
,, ,, .. ,, ,, ,, ,,	Cedar Keys	Fla.
,, ,, .. ,, ,, ,, ,,	Jacksonville	Fla.
,, ,, .. ,, ,, ,, ,,	Pensacola	Fla.
,, ,, .. ,, ,, ,, ,,	Albany	Ga.
,, ,, .. ,, ,, ,, ,,	Augusta	Ga.
,, ,, .. ,, ,, ,, ,,	Athens	Ga.
,, ,, .. ,, ,, ,, ,,	Atlanta	Ga.
,, ,, .. ,, ,, ,, ,,	Brunswick	Ga.
,, ,, .. ,, ,, ,, ,,	Columbus	Ga.
,, ,, .. ,, ,, ,, ,,	Macon..	Ga.
,, ,, .. ,, ,, ,, ,,	Rome	Ga.
,, ,, .. ,, ,, ,, ,,	Savannah	Ga.
,, ,, .. ,, ,, ,, ,,	Charlotte	N. C.
,, ,, .. ,, ,, ,, ,,	New Berne	N. C.
,, ,, .. ,, ,, ,, ,,	Raleigh	N. C.
,, ,, .. ,, ,, ,, ,,	Wilmington	N. C.
,, ,, .. ,, ,, ,, ,,	Charleston	S. C.
,, ,, .. ,, ,, ,, ,,	Columbia	S. C.
,, ,, .. ,, ,, ,, ,,	Georgetown	S. C.
,, ,, .. ,, ,, ,, ,,	Greenville	S. C.
,, ,, .. ,, ,, ,, ,,	Newberry	S. C.
,, ,, .. ,, ,, ,, ,,	Orangeburgh	S. C.
,, ,, .. ,, ,, ,, ,,	Alexandria	Va.
,, ,, .. ,, ,, ,, ,,	Danville	Va.
,, ,, .. ,, ,, ,, ,,	Lynchburgh	Va.
,, ,, .. ,, ,, ,, ,,	Norfolk	Va.
,, ,, .. ,, ,, ,, ,,	Petersburg	Va.
,, ,, .. ,, ,, ,, ,,	Portsmouth	Va.
,, ,, .. ,, ,, ,, ,,	Richmond	Va.
Southern Massachusetts Telephone Company, The .. .. New Bedford, Mass.	New Bradford	Mass.
	Fall River	Mass.
,, ,, ,, ,, ,,	Taunton	Mass.
Southern New York Bell Telephone Co., Elmira, N. Y.	Binghamton	N. Y.
Southern Ohio Telephone Exchange Company, The.. .. .. .. Ironton, O.	Ironton	Ohio.
	Portsmouth	Ohio.

Digitized by Google

EXCHANGES—*continued.*

NAME AND ADDRESS.	LOCATION OF EXCHANGE.	
Southern Penn. Telephone Co., The .. .. Harrisburgh, Penn.	Carlisle	Penn.
,, ,, ,, ,, ,, ,,	Chambersburgh	Penn.
,, ,, ,, ,, ,, ,,	Harrisburgh	Penn.
South-western Telegraph and Telephone Company .. .. Little Rock, Ark.	Lancaster	Penn.
,, ,, ,, ,, ,,	Austin	Texas.
,, ,, ,, ,, ,,	Brenham	Texas.
,, ,, ,, ,, ,,	Corsicana	Texas.
,, ,, ,, ,, ,,	Dallas	Texas.
,, ,, ,, ,, ,,	Fort Worth	Texas.
,, ,, ,, ,, ,,	Galveston	Texas.
,, ,, ,, ,, ,,	Houston	Texas.
,, ,, ,, ,, ,,	San Antonio	Texas.
,, ,, ,, ,, ,,	Sherman	Texas.
Speer, David S. & Co. .. .. .. Ashland, Ohio.	Waco	Texas.
Steuben Bell Telephone Company .. .. Elmira, N. Y.	Ashland	Ohio.
,, ,, ,, ,, ,,	Bath	N. Y.
,, ,, ,, ,, ,,	Corning	N. Y.
,, ,, ,, ,, ,,	Hornellsville	N. Y.
St. Joseph Telephone Exchange Company, The .. .. St. Joseph, Mo.	Owego	N. Y.
Storke, H. L. .. .. New York, N. Y.	Towanda	Penn.
Stump, W. S. .. .. Nevada, Mo.	St. Joseph	Mo.
Suburban Telephone Company .. .. Boston, Mass.	Cortland	N. Y.
,, ,,	Nevada	Mo.
,, ,,	Brookline	Mass.
,, ,,	Cambridge	Mass.
,, ,,	Chelsea	Mass.
,, ,,	East Boston	Mass.
,, ,,	Hyde Park	Mass.
,, ,,	Jamaica Plain	Mass.
,, ,,	Malden	Mass.
,, ,,	Medford	Mass.
,, ,,	Milton	Mass.
,, ,,	Newton	Mass.
,, ,,	Waltham	Mass.
,, ,,	Woburn	Mass.
Sullivan Telephone Exchange Co. .. Sullivan, Ind.	Sullivan	Ind.
Telephone and Telegraph Construction Co., The .. .. Detroit, Mich.	Adrian	Mich.
,, ,, ,, ,, ,,	Alpena	Mich.
,, ,, ,, ,, ,,	Ann Arbor	Mich.
,, ,, ,, ,, ,,	Battle Creek	Mich.
,, ,, ,, ,, ,,	Big Rapids	Mich.
,, ,, ,, ,, ,,	Detroit	Mich.
,, ,, ,, ,, ,,	East Saginaw, Bay City, Saginaw City	Mich.
,, ,, ,, ,, ,,	Flint	Mich.
,, ,, ,, ,, ,,	Grand Haven	Mich.
,, ,, ,, ,, ,,	Grand Rapids	Mich.
,, ,, ,, ,, ,,	Houghton	Mich.
,, ,, ,, ,, ,,	Hancock	Mich.
,, ,, ,, ,, ,,	Jackson	Mich.
,, ,, ,, ,, ,,	Kalamazoo	Mich.
,, ,, ,, ,, ,,	Lansing	Mich.
,, ,, ,, ,, ,,	Ludington	Mich.
,, ,, ,, ,, ,,	Manistee	Mich.
,, ,, ,, ,, ,,	Marquette	Mich.
,, ,, ,, ,, ,,	Negaunee	Mich.
,, ,, ,, ,, ,,	Menominee	Mich.
,, ,, ,, ,, ,,	Montague, Whitehall	Mich.
,, ,, ,, ,, ,,	Mt. Clemens	Mich.
,, ,, ,, ,, ,,	Muskegon	Mich.
,, ,, ,, ,, ,,	Niles	Mich.
,, ,, ,, ,, ,,	Port Huron	Mich.
,, ,, ,, ,, ,,	St. Clair	Mich.
,, ,, ,, ,, ,,	St Joseph, Benton Harbor	Mich.
,, ,, ,, ,, ,,	Tecumseh	Mich.
,, ,, ,, ,, ,,	Three Rivers	Mich.
,, ,, ,, ,, ,,	Ypsilanti	Mich.

Digitized by Google

EXCHANGES—*continued.*

NAME AND ADDRESS.	LOCATION OF EXCHANGE.
Telephone Exchange Company, Baltimore, Md.	Baltimore Md.
" " " "	Cumberland Md.
Topeka Telephone Exchange Company, The Topeka, Kans.	Topeka Kans.
Union Telephonic Exchange Co., The Norwalk, O.	Norwalk Ohio.
Utah Telephone Company Salt Lake City, Utah.	Salt Lake City Utah.
Walpole Telephone Exchange Walpole, Mass.	Walpole Mass.
Warren Telephone Exchange Erie, Penn.	Warren Penn.
Watertown Telephone Company Watertown, N. Y.	Watertown N. Y.
Western Massachusetts Telephone Corporation, The Pittsfield, Mass.	North Adams Mass.
" " " " "	Northampton Mass.
" " " " "	Pittsfield Mass.
" " " " "	Westfield Mass.
Western Telephone Company Chicago, Ill.	La Salle Ill.
" " " " "	Ottawa Ill.
" " " " "	Quincy Ill.
" " " " "	Rockford Ill.
" " " " "	Rock Island, Moline Ill.
" " " " "	Davenport Iowa.
" " " " "	Indianapolis Ind.
" " " " "	Kokomo Ind.
" " " " "	La Fayette Ind.
" " " " "	Logansport Ind.
" " " " "	Marion Ind.
" " " " "	Michigan City Ind.
" " " " "	Peru Ind.
" " " " "	South Bend Ind.
" " " " "	Cedar Rapids Iowa.
" " " " "	Des Moines Iowa.
" " " " "	Dubuque Iowa.
" " " " "	Keokuk Iowa.
" " " " "	Ottumwa Iowa.
Whiteman, L. H. Xenia, Ohio.	Xenia Ohio.
Winnipesaukee Bell Telephone Co., The Laconia, N. H.	Laconia N. H.
Winter Brothers Kingston, N. Y.	Kingston, Rondout N. Y.
Wyoming Telephone & Telegraph Co. Cheyenne, Wyoming Territory.	Cheyene Wyo. Ter.
	Laramie City Wyo. Ter.
York Telephone Exchange York, Penn.	York Penn.
Young, M. J. Oberlin, Ohio.	Oberlin Ohio.
Telephone Despatch Company, The Boston, Mass.	Boston Mass.

LICENSEES

For the Supply of Telephones for Private Lines and other purposes.

NAME.	ADDRESS.
Allaire & Reyburn	Peoria Ill.
American Bell Telephone Exchange of Jamestown, N. Y.	Jamestown N. Y.
American District Telegraph Company of Utica, N. Y.	Utica N. Y.
American District Telegraph Company	Louisville Ky.
Bagley, Leon G.	Rutland Vt.
Bailey, C. H.	Rushville Ind.
Balch & Root	Lyons Iowa.
Beach & Hunt	West Winsted Conn.
Beatrice Electric Company	Beatrice Neb.
Bell Telephone Company of Buffalo, The	Buffalo N. Y.
Bell Telephone Company of Missouri, The	St. Louis Mo.
Bell Telephone Company of New Mexico, The	Las Vegas New Mex.
Bell Telephone Company of Philadelphia	Philadelphia Penn.
Bingham, C. C.	St. Johnsbury Vt.
Boston and Northern Telephone Company	Lowell Mass.

Digitized by Google

LICENSEES—*continued.*

NAME.	ADDRESS.	
Brattleboro' Telephone Exchange	Brattleboro'	Vt.
Brockton Telephone Company	Brockton	Mass.
Brewer, H. C., & Son	Syracuse	N. Y.
Brown, A. C.	Montpelier	Vt.
Bundy, C. H.	Middletown	Ohio.
Burlington Telephone Company	Burlington	Iowa.
Central District and Printing Telegraph Co., The	Pittsburgh	Penn.
Central Ohio Telephone Company, The	Chillicothe	Ohio.
Central Pennsylvania Telephone and Supply Company	Williamsport	Penn.
Central Telephone Company	Chicago	Ill.
Cheshire County Telephone Company	Keene	N. H.
Citizens' Bell Telephone Company of Union City, Ind.	Union City	Ind.
City and Suburban Telegraph Association, The	Cincinnati	Ohio.
Clapp, Clement L.	Carrollton	Ill.
Cleveland Telephone Company, The	Cleveland	Ohio.
Clute, Homer A.	Mauch Chunk	Penn.
Colorado Telephone Company, The	Denver	Col.
Commercial Telephone Company	Albany	N. Y.
Comstock, L. W.	Columbus	Ind.
Connecticut Telephone Company, The	New Haven	Conn.
Cozzens & Bull	Newport	R. I.
Cumberland Telephone Company	Evansville	Ind.
Cunningham, R. A., & Mansfield, M. W.	Zanesville	Ohio.
Danbury Telephone Despatch Company, The	Danbury	Conn.
Danville Telephone Company, The	Danville	Ind.
Dunkirk Telephone Exchange, The	Dunkirk	N. Y.
Eastern Pennsylvania Telephone Company	Reading	Penn.
East Tennessee Telephone Company	New York	N. Y.
Elmira Bell Telephone Exchange	Elmira	N. Y.
Empire State Telephone and Telegraph Company, The	Auburn	N. Y.
Evansville Telephone Exchange of Evansville, Ind., The	Evansville	Ind.
Eagle, George B., Jr., & Co.	Cedar Rapids	Iowa.
Fearis, James H.	Connersville	Ind.
Freeport Telephone Exchange Company	Freeport	Ill.
Glenwood Telephone Exchange Company	Glenwood	Iowa.
Gold and Stock Telegraph Company, The	New York	N. Y.
Goodall, F. W.	Bennington	Vt.
Granite State Telephone Company, The	Manchester	N. H.
Hamilton, H. H.	Sayre	Penn.
Hampden Telephone Company	Springfield	Mass.
Haskins, C. H.	Milwaukee	Wis.
Hazard, R. G., 2d	Peacedale	R. I.
Herkimer Telegraph and Telephone Company, The	Utica	N. Y.
Hickok, J. S.	Vergennes	Vt.
Hudson River Telephone and Telegraph Company, The	New York	N. Y.
Idaho Telephone and Telegraph Company	Ogden City	Utah.
Iowa and Minnesota Telephone Company	Dubuque	Iowa.
Iowa Telephone and Telegraph Company	Cedar Rapids	Ia.
Ithaca Telephone Exchange, The	Ithaca	N. Y.
Johnson, L.	Vincennes	Ind.
Korty, L. H.	Omaha	Neb.
Loomis & McDaniel	Carthage	Mo.
Louisiana Telephone Company	New Orleans	La.
Massachusetts Telephone Company	So. Framingham	Mass.
Merchants' Telephone and Telegraph Company of Kansas and Missouri, The	Kansas City	Mo.
Metropolitan Telephone and Telegraph Company, The	New York	N. Y.
Midland Telephone Company	Chicago	Ill.
Missouri Telephone Company	Indianapolis	Ind.
Mohawk Valley Telephone and Telegraph Company, The	New York	N. Y.
Muncie Bell Telephone Company	Muncie	Ind.
National Bell Telephone Company of the State of Me, The	Lowell	Mass.
National Capital Telephone Company, The	Washington	D. C.
Newell, F. A.	Bradford	Penn.
North-western Telephone Exchange Company, The	Minneapolis	Minn.
O'Brien, Richard	Scranton	Penn.
Pacific Bell Telephone Company	San Francisco	Cal.
Peekskill Telephone Company	Peekskill	N. Y.
Post & Co.	Cincinnati	Ohio.
Providence Telephone Company	Providence	R. I.
Red Oak Telephone Company	Red Oak	Iowa.

Digitized by Google

LICENSEES—*continued.*

NAME.	ADDRESS.	
Rhoads, H. R., & Kinsey, L. C.	Wilkesbarre	Penn.
Rolfe, H. P.	Fort Benton	Montana.
Saint Albans Telephone Exchange Company, The	Saint Albans	Vt.
Scobell, Joseph S.	Erie, Erie County	Penn.
Southern Bell Telephone and Telegraph Company	New York	N. Y.
Southern Massachusetts Telephone Company, The	New Bedford	Mass.
Southern New York Bell Telephone Company	Elmira	N. Y.
Southern Ohio Telephone Exchange Company, The	Ironton	Ohio.
Southern Pennsylvania Telephone Company, The	Harrisburgh	Penn.
South-western Telegraph and Telephone Company	Little Rock	Ark.
Steuben Bell Telephone Company	Elmira	N. Y.
Storke, H. L.	New York	N. Y.
Sullivan Telephone Exchange Company	Sullivan	Ind.
Telephone and Telegraph Construction Company, The	Detroit	Mich.
Telephone Exchange Company	Baltimore	Md.
Union Telephonic Exchange Company, The	Norwalk	Ohio.
Utah Telephone Company	Salt Lake City	Utah.
Van Nostrand, Dexter	Watertown	N. Y.
Vincent, W. S.	Burlington	Vt.
Western Massachusetts Telephone Corporation, The	Pittsfield	Mass.
Western Telephone Company	Chicago	Ill.
Whiteman, L. H.	Xenia	Ohio.
Wilmot, W. H.	Lambertville	N. J.
Winter Brothers	Kingston	N. Y.
Wyoming Telephone and Telegraph Company	Cheyenne	Wyo. Ter.
York Telephone Exchange	York	Penn.
Young, M. J.	Oberlin	Ohio.

EXTRA-TERRITORIAL LINES.

NAME AND ADDRESS.	STARTING AND TERMINAL POINT.
American Bell Telephone Exchange, of Jamestown, N. Y.	Mayville, N. Y., to Jamestown, N. Y.
Jamestown, N. Y.	
Balch & Root	Clinton, Iowa, to Morrison, Ill.
Lyons, Iowa.	Clinton, Iowa, to Mt. Carroll, Ill.
,, ,,	Clinton, Iowa, to De Witt, Iowa.
,, ,,	De Witt, Ia., to Davenport, Ia.
Bell Telephone Company of Buffalo, The	Buffalo, N. Y., to Akron, N. Y.
Buffalo, N. Y.	Buffalo, N. Y., to Lockport, N. Y.
,, ,, ,, ,, ,, ,,	Buffalo, N. Y., to Niagara Falls, N. Y.
Bell Telephone Company of Missouri, The, St. Louis, Mo.	St. Louis, Mo., to Alton, Ill.
Boston and Northern Telephone Company	Boston, Mass., to Salem, Mass.
Lowell, Mass.	Salem, Mass., to Gloucester, Mass.
,, ,, ,, ,, ,, ,,	Salem, Mass., to Lawrence Mass.
,, ,, ,, ,, ,, ,,	Salem, Mass., to Haverhill, Mass.
,, ,, ,, ,, ,, ,,	Salem, Mass., to Portsmouth. N. H.
,, ,, ,, ,, ,, ,,	Lawrence, Mass., to Lowell, Mass.
,, ,, ,, ,, ,, ,,	Lawrence, Mass., to Nashua, N. H.
,, ,, ,, ,, ,, ,,	Lawrence, Mass., to Concord, N. H.
,, ,, ,, ,, ,, ,,	Lawrence, Mass., to Haverhill, Mass.
,, ,, ,, ,, ,, ,,	Lawrence, Mass., to Manchester, N. H.
,, ,, ,, ,, ,, ,,	Lowell, Mass., to Nashua, N. H.
,, ,, ,, ,, ,, ,,	Haverhill, Mass., to Rochester, N. H.
,, ,, ,, ,, ,, ,,	Haverhill, Mass., to Exeter, N. H.
,, ,, ,, ,, ,, ,,	Newburyport, Mass., to Havehill, Mass.
,, ,, ,, ,, ,, ,,	Exeter, N. H., to Great Falls, N. H.
,, ,, ,, ,, ,, ,,	Exeter, N. H., to Portsmouth, N. H.
,, ,, ,, ,, ,, ,,	Exeter, N. H., to North Hampton, N. H.
,, ,, ,, ,, ,, ,,	Exeter, N. H., to Newburyport, Mass.
,, ,, ,, ,, ,, ,,	Manchester, N. H., to Concord, N. H.
,, ,, ,, ,, ,, ,,	Nashua, N. H., to Ayer, Mass.
Brockton Telephone Company	Brockton, Mass. to Boston, Mass.
Bundy & Whiteman	Middletown, Ohio. Lebanon, Ohio, to Xenia, Ohio.
Bundy, C. H.	Middletown, Ohio, to Lebanon, Ohio.
Middletown, O.	Middletown, Ohio, to Hamilton, Ohio.

Digitized by Google

EXTRA-TERRITORIAL LINES—*continued.*

NAME AND ADDRESS.	STARTING AND TERMINAL POINT.
Central District and Printing Telegraph Company .. .. Pittsburg, Penn.	Meadville, Penn., to Titusville, Penn.
Central Ohio Telephone Company, The, Chillicothe, Ohio.	Chillicothe, Ohio, to Circleville, Ohio.
Central Pennsylvania Telephone and Supply Co. .. .. Williamsport, Penn.	Williamsport, Penn., to Lock Haven, Penn.
Central Telephone Company .. .. Chicago, Ill.	Alton, Ill., to St. Louis, Mo.
,, ,, .. ,, ,, ,,	Anderson, Ind., to Indianapolis, Ind.
,, ,, .. ,, ,, ,,	Cambridge City, Ind., to Eaton, Ohio.
,, ,, .. ,, ,, ,,	Crawfordsville, Ind., to Lebanon, Ind.
,, ,, ,, ,, ,,	Frankfort, Ind., to La Fayette, Ind.
,, ,, ,, ,, ,,	Franklin, Ind., to Indianapolis, Ind.
,, ,, ,, ,, ,,	Frankfort, Ind., to Lebanon, Ind.
,, ,, ,, ,, ,,	Galesburgh, Ill., to Monmouth, Ill.
,, ,, ,, ,, ,,	Geneseo, Ill., to Davenport, Ia.
,, ,, ,, ,, ,,	Greencastle, Ind., to Indianapolis, Ind.
,, ,, ,, ,, ,,	Hartford City, Ind., to Marion, Ind.
,, ,, ,, ,, ,,	La Porte, Ind., to Michigan City, Ind.
,, ,, ,, ,, ,,	Lebanon, Ind., to Indianapolis, Ind.
,, ,, ,, ,, ,,	Marshall, Ill., to Terre Haute, Ind.
,, ,, ,, ,, ,,	Martinsville, Ind., to Indianapolis, Ind.
,, ,, ,, ,, ,,	Mendota, Ill., to La Salle, Ill.
,, ,, ,, ,, ,,	Mendota, Ill., to Princetown, Ill.
,, ,, ,, ,, ,,	Noblesville, Ind., to Indianapolis, Ind.
,, ,, ,, ,, ,,	Paris, Ill., to Terre Haute, Ind.
,, ,, ,, ,, ,,	Princeton, Ill., to La Salle, Ill.
,, ,, ,, ,, ,,	Richmond, Ind., to Greenville, Ohio.
,, ,, ,, ,, ,,	Springfield, Ill., to Petersburgh, Ill.
,, ,, ,, ,, ,,	Springfield, Ill., to Taylorville, Ill.
,, ,, ,, ,, ,,	Streator, Ill., to Ottawa, Ill.
Coal Telephone Company .. Mauch Chunk, Penn.	Mauch Chunk, Penn., to Hazleton, Penn.
Colorado Telephone Company, The .. .. Denver, Col.	Denver, Col., to Central City, Col.
,, ,, ,, ,, ,, ,,	Denver, Col., to Georgetown, Col.
	Denver, Col., to Cariboo, Col.
Connecticut Telephone Company, The.. .. .. .. New Haven, Ct.	New Haven, Conn., to Derby, Conn.
,, ,, ,, ,, ,, ,,	Meriden, Conn., to Middletown, Conn.
	New London, Conn., to Norwich, Conn.
Cozzens & Bull .. .. Newport, R. I.	Newport, R. I., to Fall River, Mass.
Eastern Pennsylvania Telephone Company, The .. .. Reading, Penn.	Reading, Penn., to Pottsville, Penn.
,, ,, ,, ,, ,, ,,	Reading, Penn., to Pottsdown, Penn.
	Reading, Penn., to Lebanon, Penn.
Evansville Telephone Exchange of Evansville, Ind., The .. Evansville, Ind.	Evansville, Ind., to Jasper, Ind.
,, ,, ,, ,, ,, ,,	Evansville, Ind., to Mount Vernon, Ind.
,, ,, ,, ,, ,, ,,	Evansville, Ind., to Owensboro, Ky.
,, ,, ,, ,, ,, ,,	Evansville, Ind., to Princeton, Ind.
,, ,, ,, ,, ,, ,,	Evansville, Ind., to Vincennes, Ind.
,, ,, ,, ,, ,, ,,	Madisonville, Ky., to Hopkinsville, Ky.
,, ,, ,, ,, ,, ,,	Rockport, Ind., to Tell City, Ind.
,, ,, ,, ,, ,, ,,	Tell City, Ind., to Owensboro, Ky.
Haskings, C. H. & Co. .. .. Milwaukee, Wis.	Wilwaukee, Wis., to Racine Wis.
,, ,, ,, ,, ,, ,,	Oshkosh, Wis., to Green Bay Wis.
	Oshkosh, Wis., to Fond-du-lac, Wis.
Hazard, R. G., 2d .. .. .. Peacedale, R. I.	South Kingston, R.I., to Providence, R.I.
Hudson River Telephone and Telegraph Company, The .. New York City, N. Y.	Poughkeepsie, Fishkill & Newburgh, N.Y.
Inter-state Telephone Company .. Providence, R. I.	Boston, Mass., to Providence, R. I.
Iowa Telephone and Telegraph Company .. .. Cedar Rapids, Ia.	Anamosa, Ia., to Cedar Rapids, Ia.
,, ,, ,, ,, ,, ,, ,,	Fort Dodge, Ia., to Dakotah, Ia.
,, ,, ,, ,, ,, ,, ,,	Indianola, Ia., to Des Moines, Ia.
	Winterset, Ia., to Des Moines, Ia.
Jackson County Bell Telephone Company .. .. .. Maquoketa, Iowa.	Maquoketa, Iowa., to Bellevue, Iowa.
	Maquoketa, Iowa, to Sabula, Iowa.
Johnson, Lenson .. .. Vincennes, Ind.	Shelbyville, Ind., to Indianapolis, Ind.
,, ,, ,, ,, ,,	Vincennes, Ind., to Evansville, Ind.
,, ,, ,, ,, ,,	Vincennes, Ind., to Olney, Ill.
,, ,, ,, ,, ,,	Vincennes, Ind., to Washington, Ind.
,, ,, ,, ,, ,,	Washington, Ind., to Petersburgh, Ind.
	Washington, Ind., to Bloomfield, Ind.
Korty, L. H. & Co. .. : .. .. Omaha, Neb.	Omaha, Neb., to Blair, Neb.
,, ,, ,, ,, ,,	Omaha, Neb., to Fremont, Neb.
,, ,, ,, ,, ,,	Omaha, Neb., to Plattsmouth, Neb.
	St. Paul, Neb., to Grand Island, Neb.

Digitized by Google

EXTRA-TERRITORIAL LINES—*continued.*

NAME AND ADDRESS.	STARTING AND TERMINAL POINT.
Leadville Telephone Company, The .. Leadville, Col.	Denver, Col., to Leadville, Col.
Lehigh Valley Telephone Company .. Easton, Penn.	Easton, Penn., to Allentown, Penn.
Massachusetts Telephone Company .. .. So. Framingham, Mass.	Boston, Mass., to Springfield, Mass.
,, ,, ,, ,, ,,	Fitchburg, Mass., to Gardner, Mass.
,, ,, ,, ,, ,,	Orange, Mass., to Gardner, Mass.
,, ,, ,, ,, ,,	Southbridge, Mass., to Worcester, Mass.
,, ,, ,, ,, ,,	So. Framingham, Mass., to Clinton, Mass.
Mauch Chunk Telephone Company, Mauch Chunk, Penn.	Mauch Chunk, Penn., to Allentown, Penn.
Merchants' Telephone and Telegraph Company of Kansas and Missouri, The .. .. .. Kansas City, Mo.	Kansas City, Mo., to Leavanworth, Kan.
Michigan Bell Telephone Company .. .. Detroit, Mich.	Detroit, Mich., to Port Huron, Mich.
,, ,, ,, ,, ,,	Grand Rapids, Mich., to Montague, Mich.
	Detroit, Mich., to Toledo, Ohio.
Midland Telephone Company .. .. Chicago, Ill.	Akron, Ohio, to Canton, Ohio.
,, ,, ,, ,, ,,	Akron, Ohio, to Cleveland, Ohio.
,, ,, ,, ,, ,,	Cleveland, Ohio, to Oberlin, Ohio.
,, ,, ,, ,, ,,	Columbus, Ohio, to Lancaster, Ohio.
,, ,, ,, ,, ,,	Dayton, Ohio, to Eaton, Ohio.
,, ,, ,, ,, ,,	Dayton, Ohio, to Springfield, Ohio.
,, ,, ,, ,, ,,	Dayton, Ohio, to Xenia, Ohio.
,, ,, ,, ,, ,,	Eaton, Ohio, to Hamilton, Ohio.
,, ,, ,, ,, ,,	Greenville, Ohio, to Richmond, Ind.
,, ,, ,, ,, ,,	Lima, Ohio, to Middletown, Ohio.
,, ,, ,, ,, ,,	Springfield, Ohio, to Urbana, Ohio.
,, ,, ,, ,, ,,	Toledo, Ohio, to Detroit Mich.
National Bell Telephone Co. of the State of Me., The .. Lowell, Mass.	Brunswick, Me., to Lewiston, Me.
,, ,, ,, ,, ,, ,, ,,	Brunswick, Me., to Bath, Me.
,, ,, ,, ,, ,, ,, ,,	Brunswick, Me., to Augusta, Me.
,, ,, ,, ,, ,, ,, ,,	Biddeford, Me., to Portsmouth, N. H.
,, ,, ,, ,, ,, ,, ,,	Portland, Me., to Biddeford, Me.
,, ,, ,, ,, ,, ,, ,,	Portland, Me., to Lewiston, Me.
Newell, Frank A... .. .. .. Bradford, Penn.	Bradford, Penn., to Richburgh, N. Y.
Northern Massachusetts Telephone Company.. .. .. Lowell, Mass.	Worcester, Mass., to Lowell, Mass.
	Ayer, Mass., to Boston, Mass.
North-western Telephone Exchange Company, The.. .. Minneaopolis, Minn.	Minneapolis, Minn., to Minnetrista, Minn.
	St. Paul, Minn., to Stillwater, Minn.
Ogden Telephone Exchange Company.. .. .. .. Ogden City, U. T.	Brigham City, U. T., to Ogden City, U.T.
	Ogden City, U.T., to Salt Lake City, U.T.
Pioneer Telephone Company .. .. Lowell, Mass.	Boston, Mass, to Lowell, Mass.
Providence Telephone Company .. .. Providence, R. I.	Providence, R. I., to Pascoag, R. I.
,, ,, ,, ,, ,,	Providence, R. I., to Warren, R. I.
	Providence, R. I., to South Kingston, R.I.
Southern Massachusetts Telephone Company, The .. .. New Bedford, Mass.	New Bedford, Mass., to Fall River, Mass.
,, ,, ,, ,, ,, ,,	Fall River, Mass., to Warren, R. I.
,, ,, ,, ,, ,, ,,	Fall River, Mass., to Taunton, Mass.
,, ,, ,, ,, ,, ,,	Taunton, Mass, to Brockton, Mass.
	Fall River, Mass., to Newport, R. I.
Southern Ohio Tel. Exchange Co., .. The, Ironton, Ohio.	Portsmouth, Ohio, to Ironton, Ohio.
Stuben Bell Telephone Company .. Elmira, N. Y.	Hornellsville, N. Y. to Bath, N. Y.
Utah Telephone Company .. Salt Lake City, U. T.	Salt Lake City, U.T., to Ogden City, U.T.
Western Massachusetts Telephone Corporation, The .. Pittsfield, Mass.	Pittsfield, Mass., to North Adams, Mass.
,, ,, ,, ,, ,, ,,	Westfield, Mass, to Springfield, Mass.
	Northampton, Mass., to Holyoke, Mass.
Western Telephone Company .. .. Chicago, Ill.	Cedar Rapids, Ia., to Anamosa, Ia.
,, ,, ,, ,, ,,	Davenport, Ia., to De Witt, Ia.
,, ,, ,, ,, ,,	Davenport, Ia., to Genesco, Ia.
,, ,, ,, ,, ,,	Des Moines, Ia., to Indianola, Ia.
,, ,, ,, ,, ,,	Des Moines, Ia., to Winterset, Ia.
,, ,, ,, ,, ,,	Dubuque, Ia., to Dyersville, Ia.
,, ,, ,, ,, ,,	Indianapolis, Ind., to Anderson, Ind.
,, ,, ,, ,, ,,	Indianapolis, Ind., to Franklin, Ind.
,, ,, ,, ,, ,,	Indianapolis, Ind., to Greencastle, Ind.
,, ,, ,, ,, ,,	Indianapolis, Ind., to Lebanon, Ind.
,, ,, ,, ,, ,,	Indianapolis, Ind., to Martinsville, Ind.
,, ,, ,, ,, ,,	Indianapolis, Ind., to Noblesville, Ind.
,, ,, ,, ,, ,,	Indianapolis, Ind., to Shelbyville, Ind.
,, ,, ,, ,, ,,	La Fayette, Ind., to Frankfort, Ind.
,, ,, ,, ,, ,,	La Salle, Ill., to Mendato, Ill.
,, ,, ,, ,, ,,	La Salle, Ill., to Princeton, Ill.
,, ,, ,, ,, ,,	Marion, Ind., to Hartford City, Ind.
,, ,, ,, ,, ,,	Ottawa, Ill., to Streator, Ill.

Digitized by Google

EXTRA-TERRITORIAL LINES—*continued.*

NAME AND ADDRESS.	STARTING AND TERMINAL POINT.
Western Telephone Company .. .. .. Chicago, Ill.	Peru, Ill., to Joliet, Ill.
,, ,, ,, ,, ,,	Peru, Ind., to Logansport, Ind.
,, ,, ,, ,, ,,	Peru, Ind., to Marion, Ind.
Western Telephone Despatch Company, The .. .. .. St. Joseph, Mo.	St. Joseph, Mo., to Atchison, Kan.
Whiteman, L. H... .. .. Xenia, Ohio.	Xenia, Ohio, to Dayton, Ohio.
Young, M. J. .. .. Oberlin, Ohio.	Oberlin, Ohio, to Cleveland, Ohio.

MANUFACTURERS.

NAME.	ADDRESS.	
Davis & Watts	Baltimore	Md.
Electric Merchandising Company	Chicago	Ill.
Gilliland Electric Manufacturing Company	Indianapolis	Ind.
Post & Company	Cincinnati	Ohio.
Western Electric Company	New York (and)	N. Y.
	Chicago	Ill.
Williams, Charles, Jr.	Boston..	Mass.

Digitized by Google

INTERNATIONAL OCEAN TELEGRAPH CO.,

WESTERN UNION BUILDING,

NEW YORK.

CAPITAL ... ... $3,000,000.

NORVIN GREEN, PRESIDENT.

THOMAS T. ECKERT, VICE-PRESIDENT.

CHARLES F. ESTEE, SECRETARY.

R. H. ROCHESTER, TREASURER.

Directors:

NORVIN GREEN.
AUGUSTUS SCHEEL.
HARRISON DURKEE.
EDWARDS S. SANFORD.
EDWIN D. MORGAN.
R. H. ROCHESTER.
ROBERT C. LIVINGSTON.
JAY GOULD.
THOMAS T. ECKERT.

LAND LINES

From Lake City, Florida, to Punta Rassa, Florida.

TWO SUBMARINE CABLES

From Punta Rassa, Florida, to Key West, Florida.

TWO SUBMARINE CABLES

From Key West, Florida, to Havana, Cuba.

TARIFF:

50 Cents per Word, New York to Havana.

Digitized by Google

STANDARDS OF TIME,

Regulating the Running of Trains upon Railroads in the United States and Canada.

Figures for Time compared with 12.00 Noon at Washington, D. C.

CHARLOTTE TOWN, P.E.I.
12 58 p.m.
Prince Edward Island.

SPECIAL STANDARD.
12 39 p.m.
Intercolonial.
Windsor & Annapolis.
Western Counties.

ST. STEPHEN, N.B.
12 39 p.m.
New Brunswick & Can.

BANGOR, ME.
12 33 p.m.
Bangor & Piscataquis.
European & North Am.

BATH, ME.
12 29 p.m.
Knox & Lincoln.

PORTLAND, ME.
12 27 p.m.
Grand Trunk.
(*East of Island Pond.*)
Portland & Rochester.
Portland & Ogdensburg.

BOSTON, MASS.
12 24 p.m.
Ashuelot.
Boston & Albany.
Boston & Lowell.
Boston & Maine.
Boston & Providence.
Boston, Barre & Gard.
Boston, Concord & Mon.
Cheshire.
Concord and branches.
Concord & Claremont.
Connecticut River.
Eastern (Mass.)
Fitchburg.
Maine Central.
New Haven & North.
New York & New England.
Northern (N. H.)
Old Colony.
Passumpsic.
St. John & Lk. Champ.
Vermont Valley.
Worcester & Nashua.

PROVIDENCE, R.I.
12 22 p.m.
N. York, Prov. & Boston.
Providence & Springfield.
Providence & Worcester.
Prov., War. & Bristol.

N. LONDON, CONN.
12 20 p.m.
Bennington & Rutland.
Central Vermont.

NEW HAVEN, CONN.
12 16 p.m.
Connecticut Western.
New Haven & Derby.

MONTREAL, CAN.
12 14 p.m.
Canada Central.
Grand Trunk.
(*Toronto to Is. Pond.*)
South-eastern.
St. Lawrence & Ottawa.

ALBANY, N.Y.
12 13 p.m.
Adirondack.
Del. & Hud. Canal Cos. R.R.
Fonda, John's & Glov.
Rome, Wat. & Ogd.
Troy. & Boston.

NEW YORK.
12 12 p.m.
Boston & N.Y. Air-Line.
Central Railroad of N.J.
Connecticut Valley.
Cor., Cowan & Antrim
Danbury & Norwalk.
Del., Lack & Western.
Dun., Al. Val. & Pitts.
Housatonic.
Long Island.
Mid. & Sch., and Sch. V.
Midland of New Jersey.
Naugatuck.
Newburg, Dut. & Conn.
New Canaan.
New Jersey & New York.
New Jersey Southern.
N. Y. Central & Hud. Riv.
New York & Greenw. Lk.
N. Y., Lake Erie & West.
N. Y., N. H. & Hartf.
New York & Harlem.
New York, Ont. & West.
Northern Central.
(*Elmira & Can. Divs.*)
Passaic & Delaware.
Poughkeep., Hart. & Bos.
Shepang.
Silver Lake.
Southern Central.
Sterling Mountain.
Syracuse, Bingh. & N. Y.
Syrac., Chenan. & N. Y.
Syracuse, Geneva & Corn.
Tioga & Elm. State Line.
Tuckerton.
Ulster & Delaware.
Utica & Black River.
Utica, Ithaca & Elmira.

PHILADELPHIA, PA.
12 07 p.m.
Allegheney Valley.
Baltimore & Potomac.
Buffalo, Pitts. & Western.
Camden & Atlantic.
Catasauqua & Fogelsy.
Cumb'd & Maurice Riv.
Cumberland Valley.
Delaware & Chesapeake.
Delaware Western.
Dorchester & Delaware.
Eastern Shore.
Han. Jun., Han. & Getsbg.
Hunt. & Brd. Top Mt.
Junction & Breakwater.
Kent County.
Lehigh Valley.
Muncy Creek.
Northern Central.
(*Balt. & Susq. Divs.*)
Ontario Southern.
Peninsula.
Pennsylvania.
Penn. & Erie.—Earley Br.
Philada. & Atlantic City.
Philadelphia & Reading.
Phila. & Balt. Central.
Phila., Wilm. & Balt.
Pitts., Bradf. & Buffalo.
Queen Anne & Kent.
South Mountain.
State Line & Sullivan.
West Chester & Phila.
West Jersey.
Wicomico & Pocomoke.
Williamstown.
Wilmington & Northern.
Worcester & Somerset.

BALTIMORE, MD.
12 02 p.m.
Annapolis & Elk Ridge.
Baltimore & Ohio.
(*East of Ohio River.*
Cumberland & Penna.
Laurel Fork & Sandhill.
Western Maryland.

WASHINGTON, D. C.
12 00 noon.
Atl. & North Carolina.
Atlantic, Miss. & Ohio.
Atlantic, Tenn. & Ohio.
Charl., Col. & Augusta.
Chesapeake & Ohio.
Columbia & Greenville.
Petersburg.
Piedmont Air Line.
Richmond & Allegheny.
Richmond & Danville.
Richmond & Petersburg.
Rich., Fred. & Potomac.
Virginia Midland.
Washington & Ohio.
Western North Carolina.
Wilm., Col. & Augusta.
Wilmington & Weldon.

RICHMOND, VA.
11 58 a.m.
Carolina Central.
Raleigh & Augusta.
Raleigh & Gaston.
Rich., York River & Ches.
Seaboard & Roanoke.

PORT HOPE, CAN.
11 54 a.m.
Midland R. W. of Canada.

BUFFALO, N. Y.
11 52 a.m.
Buffalo, N.Y. & Phila.

TORONTO, CAN.
11 51 a.m.
Cob., Peterboro & Mar.
Grand Trunk.
(*Sarnia to Toronto.*)
Northern & North-west.
Toronto, Grey & Bruce.
Toronto & Nipissing.
Whitby, P. Perry & Lind.

HAMILTON, ONT.
11 49 a.m.
Canada South, (in Can.)
Gt. Western R. W. of Can.
Welland.

CHARLESTON, S. C.
11 48 a.m.
Cheraw & Darlington.
North-eastern.
South Carolina.

SAVANNAH, GA.
11 44 a.m.
Atl. Gulf & W. I. T. Co.
Atlanta & West Point.
Brunswick & Albany.
Charleston & Savannah.
Columbus & Rome.
Jack., Pens. & Mobile.
Sav., Florida & Western.

COLUMBUS, O.
11 36 a.m.
Anderson, Leb. & St. Lo.
Baltimore & Ohio.
(*West of Ohio River.*
Canada South. (in U. S.)
Cin., Hamilton & Day.
Cincin., San. & Cleve.
Cin., Wabash & Mich.
Clev., Col. Cin. & Ind.
Cleve., Mt. Vernon & Col.
Clev., Tus. Val. & Wheel.
Cleveland & Marietta.
Cleveland & Pittsburg.
Columbus & Hock. Val.
Connotton Valley.
Dayton & Union.
Det., Gd. Haven & Mil.
Det., Lans. & Northern.
Eastern Kentucky.
Eel River.
Flint and Pere Marquette.
Ft. Wayne, Mun. & Cin.
Grand Rapids & Ind.
Gr. Rapids, New & L. S.
Lake Shore & Mich. So.
Marietta & Cincinnati.
New Castle & Franklin.
New York, Penn. & Ohio.
Painesville & Youngst'n.
Pennsylv. Co's R. Roads.
Pittsburg, Cin. & St. L.
Pitts., Ft. Wayne & Chic.
Shenango & Allegheny.

Digitized by Google

STANDARDS OF TIME,

Regulating the Running of Trains upon Railroads in the United States and Canada.

Figures for Time compared with 12.00 Noon at Washington, D. C.

MACON, GA.
11 33 a.m.
Macon & Brunswick.

KNOXVILLE, TENN.
11 32 a.m.
East Tenn., Va. & Ga.
Knoxville & Augusta.
Knoxville & Ohio.

ROME, GA.
11 32 a.m.
Rome.

ATLANTA, GA.
11 30 a.m.
Central & South-western.
Cherokee.
Georgia.
Montgomery & Eufaula.
Port Royal & Augusta.
Western Alabama.
Western & Atlantic.

CINCINNATI, O.
11 30 a.m.
Cin., New Orl. & Tex. Pac.
Kentucky Central.
White Water.

LOUISVILLE, KY.
11 26 a.m.
Louisville, Cin. & Lex.
Louisv., New Alb. & Ch.
Louisville & Nashville.
Nash., Chatt., & St. L.
Paducah & Elizabethtown.

INDIANAPOLIS, IND.
11 24 a.m.
Chicago & Block Coal.
Frankfort and Kokomo.
Ind., Bloom. & Western.
Ind., Decatur & Springf.
Ind., Peru & Chicago.
Indianapolis & St. Louis.
Indianapolis & Vincennes.
Jeff., Madison & Ind.
Vandalia Line.

NASHVILLE, TENN.
11 21 a.m.
Alabama Gt. Southern.
Memphis & Charleston.
Ship Island, Ripley & Ky.

SELMA, ALA.
11 20 a.m.
Alabama Central.
East Alabama.
East Tenn, Va. & Ga.
(*Selma Division.*)
New Orleans & Selma.
Savannah & Memphis.
Selma & Greensboro.

TERRE HAUTE, IND.
11 18 a.m.
Terre Haute & South-east.

CHICAGO, ILL.
11 17 a.m.
Burlington & South-west.
Burl., Cedar Rap. & Nor.
Cairo & Vincennes.
Central R. R. of Iowa.
Chicago & Alton.
Chicago & Eastern Ill.
Chic. & Grand Trunk.
Chicago & Iowa.
Chicago & North-western.
Chicago & West Mich.
Chic., Burl. & Quincy.
Chicago, Milw. & St. P.
(*East of Mississippi River.*)
Chic., Pekin & South-west.
Chic., R. I. & Pacific.
Cin., Ind., St. L. & Chic.
Danville & South-western.
Des Moines & Ft. Dodge.
Det., Hillsdale & S. W.
Evansv. & Terre Haute.
Fort Wayne & Jackson.
Gd. Tower & Carbondale.
Grand Trunk.
(*Port Huron to Detroit.*)
Green Bay & Minnesota.
Illinois Central.
Illinois Midland.
Kan. C., St. Jo. & C. B.
Lake Erie & Western.
Marq., Hough & Onton.
Michigan Central.
Milw., Lake Sh. & West.
Ohio & Mississippi.
Peoria, Dec. & Evansv.
Peoria, Pekin & Jack.
Rock Island & Peoria.
Sag. Valley & St. Louis.
Springfield & North-west.
St. Louis, Alt. & T. H.
St. Louis Coal.
St. Louis, Keokuk & N. W.
Sycamore, Cortl. & Chic.
Wabash, St. L. & Pacific.
Wisconsin Central.

MOBILE, ALA.
11 16 a.m.
Mobile & Ohio.

PADUCAH, KY.
11 14 a.m.
Mem., Pad. & Northern.

NEW ORLEANS, LA.
11 08 a.m.
Arkansas Midland.
Chic. St. Louis & N. O.
Memphis & Little Rock.
Mississippi & Tennessee.
Morgan's Lo. & Texas.

ST. LOUIS, MO.
11 07 a.m.
Cairo & St. Louis.
Hannibal & St. Joseph.
Illinois & St. Louis.
Jacksonville South-east.
Wabash, St. Louis & Pacific.
(*Western Division.*)
Wabash, Chest. & West.

VICKSBURG, MISS.
11 05 a.m.
Vicksburg & Meridian.
Vicksburg, Shrevpt. & Pac.

DUBUQUE, IA.
11 05 a.m.
Chicago, Mil. & St. Paul.
(*Dubuque Division.*)

JEFF'N CITY, MO.
10 59 a.m.
Atch., Top. & Santa Fé.
Galv., Houston & Hen.
International & Gt. Nor.
Little Rock & Ft. Smith.
Missouri Pacific.
St. Louis & San Francisco.
St. Louis, Iron M'tn. & So.
Texas & Pacific.
Union Pacific—Kan. Div.
(*East of Wallace.*)

ST. PAUL, MINN.
10 56 a.m.
Chic., Milw. & St. Paul.
(*West of Mississippi River.*)
Chic., St. P. & Min. & Om.
Northern Pacific.
St. Paul, Minn. & Man.

MINNEAPOLIS, MINN.
10 55 a.m.
Chic., Milw. & St. Paul.
(*Southern Minn. Div.*)
Minneapolis & St. Louis.

ST. JOSEPH, MO.
10 50 a.m.
Union Pacific.
(*St. Jos. & West. Div.*)

GALVESTON, TEX.
10 49 a.m.
Galv., Harris. & San An.
Gulf, Col. & Santa Fé.

KANSAS CITY, MO.
10 49 a.m.
Kan. C., Ft. Scott & Gulf.
Kan. C., Law. & So. Kan.

HOUSTON, TEX.
10 47 a.m.
Houston & Texas Cent.

SPECIAL STANDARD.
10 47 a.m.
Sioux City & Pacific.

OMAHA, NEB.
10 44 a.m.
Burl. & Mo. Riv. in Neb.
Union Pacific.
(*Omaha to Laramie.*)

LARAMIE, W.T.
10 12 a.m.
Union Pacific
(*Laramie to Ogden.*)

DENVER CITY, COL.
10 08 a.m.
Denver & Rio Grande.
Union Pacific—Kan. Div.
(*West of Wallace.*)
Union Pacific.
(*Colorado Division.*)
Union Pacific.
(*Denver Division.*)

SALT LAKE CITY.
9 40 a.m.
Utah Central.
Utah Northern.
Utah Southern.

CARSON, NEVADA.
9 10 a.m.
Virginia & Truckee.

KALAMA, WASH. T.
8 58 a.m.
Northern Pacific.
(*Pacific Division.*)

SAN FRANCISCO, CAL.
8 58 a.m.
California Pacific.
Central Pacific.
North Pacific Coast.
Sac. Valley & Placerv.
San Fran. & Nor. Pac.
Southern Pacific of Cal.

PORTLAND, ORE.
8 58 a.m.
Oregon & California.

Digitized by Google

PRICE LIST

OF THE

PUBLICATIONS OF THE UNITED STATES PATENT OFFICE.

SUBSCRIPTIONS TO OFFICIAL GAZETTE: (*Published every Tuesday, two volumes a year, commencing January and July.*)

To all subscribers within the United States and Canada one year, January to December or July to June $5 00

To foreign subscribers, except Canada, January to December 7 00

Single numbers 10

No Club rates.

(All subscriptions must commence with the beginning of a volume—January or July. None taken for less than six months.)

BOUND VOLUMES OF OFFICIAL GAZETTE:

One year (2 volumes, January to June and July to December,) full law binding, $4 per volume..... 8 00

One year, (2 volumes, January to June and July to December,) half sheep binding, $3.50 per volume 7 00

ANNUAL INDEX, or Lists of Patents and Inventions, alphabetically arranged, with date of patent, number, &c., for the years 1872, '73, '74, '75, '76, '77, '78, '79, '80, one volume each year, full law binding, per volume..... 2 00

Do. Unbound, per volume 1 00

Prior to 1872 this information, with plates similar to the illustrations contained in the Official Gazette, was embodied in the Annual Report of the Patent Office and gratuitously distributed. The free distribution of the back numbers of these has ceased, as they are nearly exhausted. As a substitute therefor the Office has compiled a General Index, mentioned next below.

GENERAL INDEX: List of Inventions patented from 1790 to 1873, with name of inventor, residence, date of patent, number, &c., 3 volumes, full law binding, per set 10 00

INDEX 1790 to 1836: Lists of Inventions patented from 1790 to 1836, photo-lithographed from Patent Reports, one volume, full law binding..... 5 00

Digitized by Google

COMMISSIONER'S DECISIONS:

For 1869, '70, '71, bound in one volume, full law binding	$2 00
„ 1872, '73, '74, „ „ „	2 00
„ 1875, '76, in one volume, with decisions of U. S. Courts in patent cases, full law binding	2 00
„ 1875, '76, in one volume, with decisions of U. S. Courts in patent cases, paper	1 00
„ 1877, '78, '79, '80, one volume, *each year*, with decisions of U. S. Courts, full law binding, per volume	2 00
„ 1877, '78, '79, 80, one volume *each year*, with decisions of U. S. Courts, paper, per volume	1 00

SPECIFICATIONS AND DRAWINGS:

Single copies, if printed,* per copy	0 25
Twenty or more copies, if printed,* per copy	0 10.
Monthly volumes containing the specifications and photo-lithographic copies of the drawings of all patents issued during the month, certified, bound full sheep, per volume	12 00
Do. Bound half sheep, per volume	10 00
SPECIFICATIONS, Manuscript copies of, per 100 words	0 10
DRAWINGS, not photo-lithographed	Cost of tracing.
CERTIFIED COPIES, whether written or printed, per 100 words	0 10
MISCELLANEOUS MANUSCRIPT COPIES, per 100 words	0 10
RULES OF PRACTICE	Free.
PAMPHLET, PATENT LAWS	Free.

☞ *No Annual Reports published since* 1871 *for gratuitous distribution.* ☜

* PATENTED INVENTIONS are divided into one hundred and sixty-four classes, and these subdivided into near three thousand sub-classes. For the information of inventors and others a complete list of the classes and sub-classes, as revised and approved January 1, 1880, has been published. (See Supplement to Official Gazette, Vol. XXI. No. 1.) Persons desiring to inform themselves with regard to the state of the art in any line of invention can best do so by procuring the specifications and drawings in the sub-class containing the invention, the number and cost of which will be given upon application.

Those desiring to subscribe for the specifications and drawings in any of the sub-classes can do so by depositing an amount sufficient to cover the estimated cost for any period of time, whereupon the copies will be forwarded as patents issue.

SPECIFICATIONS OF PATENTS ISSUED SINCE JUNE 6, 1865, COMMENCING WITH No. 48,126, HAVE BEEN PRINTED UP TO THIS DATE; also, the classes of Electricity, Fishing and Trapping, and the sub-classes of Cartridges, Hand Binders, Machine Guns, Magazine Guns, Revolvers, Self-Binders, and Time Locks, previously patented.

Drawings of all patents, from earliest to present date, have been photo-lithographed, with a few exceptions. The copies in the classes of Distillation, Metallurgy, Coating with Metal, Ore, Sugar, Salt, Brewing and Fermenting, Chemicals, Bleaching and Dyeing, Explosives, Fertilizers, Oils, Fats and Glue, Painting, Preserving, Garden and Orchard, Carriages and Wagons, Metals N to Z, Drafting, Electricity, Horology, Measuring Instruments, Optics, destroyed by the fire of September 24, 1877, are being reproduced.

The cost of copies of drawings, with the specifications, if printed, when ordered in quantities of twenty or more, is ten cents per copy. If the specification has not been printed, an additional cost of ten cents per hundred words for a manuscript copy of it will be charged.

FOR THE CONVENIENCE OF THOSE WHO DO NOT DESIRE TO ORDER AS MANY AS TWENTY COPIES AT ONE TIME, COUPON ORDERS, GOOD FOR ONE DRAWING AND PRINTED SPECIFICATION, ARE SOLD IN QUANTITIES OF TWENTY OR MORE, AT TEN CENTS EACH. THESE MAY BE USED SINGLY AND ARE GOOD TILL USED.

Digitized by Google

THE UNITED STATES PATENT OFFICE.

By order of Commissioner Marble, United States Patent Office, all United States patents appertaining to or bearing upon electricity granted prior to July 1st, 1881, have been reprinted and the drawings thereof reproduced and bound up in neat substantial quarto volumes of about two thousand pages each. There are sixteen such volumes, the subject matter of each being of such sub-classes as naturally relate to each other, thus giving in each volume a full *résumé* of the state of the art from its origin to date. There were issued to, and including, the above date, 3,825 such patents, which are sub-divided into sixty-nine sub-classes.

A brief glance at these sub-classes reveals the fact that the most activity has been exercised within the following during the past three years: 1, electric lights; 2, dynamo-machines; 3, telephones and their appliances. Prior to January 1st, 1878, there were only twenty patents on electric lights; July 1st 1881, there were 192. Prior to July 1st, 1879, there were only nineteen dynamo and magneto machines. July 1st, 1881, shows 111.

The first telephonic telegraph patents were granted in 1875, and before January 1st, 1878, they numbered less than two dozen. Now they embrace the subject matter of two of the above volumes and constitute in all eight sub-divisions embracing all kinds of telephones, telephone telegraphs, alarms, calls, appliances, &c., all told, 438 patents.

The division of electricity has grown to be the largest in the patent office, with an average monthly showing of over two hundred new applications. Some idea may be formed about the interest manifested in America as to the future of the electric light when it appears that there are now pending over three hundred applications for patents on various features thereof, a large majority of such applications being for what is known as incandescent patterns and their appliances.

There is also much interest manifested in relation to the Faure secondary battery, and applications are pouring in upon that subject, but as yet nothing appears to be any advance upon what Faure has done. There is, however, as much interest developed in dynamo machines, and there are at present pending over 150 applications.

A large interest is also apparent in telephones and telephone exchange systems, and there are pending over two hundred applications on these devices.

In duplex and multiplex telegraphy there has been but little advance, but there are pending applications for patents for several valuable inventions.

In telegraphs and telegraph apparatus but slight advance is apparent, the leading inventions being in the applications of dynamo instead of batteries for telegraphic purposes.

Vol. I.

United States electrical patents to July 1, 1881:—

Electric lights, arc	94
,, ,, incandescent	54
,, ,, systems and appliances	44
Total	192

Vol. II.

Magneto-electric	111
Meters	11
Motors	106
Total	228

Vol. III.

Calls	61
Telephonic telegraph (details)	7
,, ,, (electrical)	102
,, ,, (magnetic)	66
Total	236

Vol. IV.

Telephonic telegraphs (mechanical)	22
,, ,, (radiophones)	6
,, ,, (reed)	30
,, ,, (systems)	144
Total	202

Vol. V.

Telegraphs	46
,, (automatic)	111
,, (dial)	23
,, (duplex)	61
,, (dynamo)	8
Total	249

Vol. VI.

Telegraphs (multiplex)	7
,, (perforating)	26
,, (printing)	191
,, (quadruplex)	19
Total	243

Vol. VII.

Conductors	149
Insulators	107
Total	256

Vol. VIII.

Connectors for joining wires, &c.	31
Lightning rods	156
Telegraph poles	24
Underground lines	53
Total	26

Digitized by Google

THE UNITED STATES PATENT OFFICE—*continued.*

Vol. IX.

Circuit closers	31
Condensers	5
Electro-magnets	42
Keys	42
Lightning arresters	8
Morse registers	20
Relays and sounders	111
Total	259

Vol. X.

Fire telegraphs	180
Recorders	34
Repeaters	29
Rheostats	6
Transmitters	37
Total	286

Vol. XI.

Alarms	17
Burgular alarms	169
Bells	37
Clocks	43
Total	266

Vol. XII.

Indicators	39
Railway signals	139
Railway car telegraphs	22
Thermostats	34
Total	234

Vol. XIII.

Applications, general	31
,, tools and machines	57
Boat steering	15
Car brakes	19
Dental instruments	22
Electric heaters	6
Exploding (for mining, &c.)	39
Total	189

Vol. XIV.

Incrustation (preventing)	23
Magnetic Locks	10
Music Playing	8
Regulators	68
Separators	38
Therapeutic Baths	33
,, Body Wear	70
,, Electrodes	17
Total	267

Vol. XV.

Batteries	162
Gas Lighting	156
Total	318

Vol. XVI.

Electrolysis	191
Friction Generators	12
Induction Coils	33
Total	236
Grand Total	3,825

69 Classes.

Digitized by Google

Digitized by Google

J. A. BERLY'S

AMERICAN

DIRECTORY OF ADVERTISERS.

Digitized by Google

BRUSH ELECTRIC COMPANY,

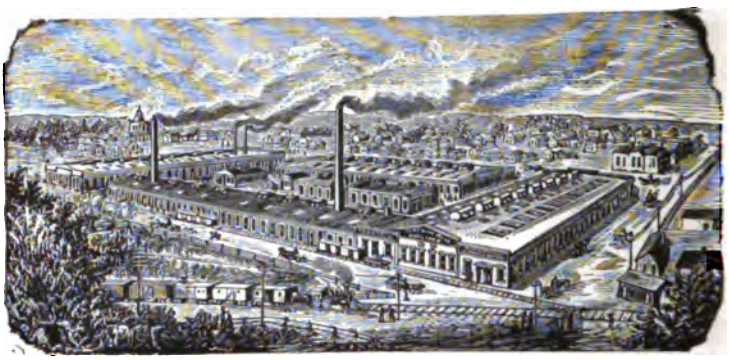
SOLE MANUFACTURERS OF

BRUSH ELECTRIC LIGHT MACHINES, LAMPS & CARBONS.

BRUSH ELECTRO-PLATING MACHINES AND APPARATUS.

M. D. LEGGETT, *President.*

O. W. STOCKLY, *Vice-President and Treasurer. Business Manager.*



WM. F. SWIFT, *Secretary.*

H. S. POSSONS, *Superintendent.*

W. J. POSSONS, *Asst. Secretary.*

FACTORY AT CLEVELAND, O.

WORKS: MASON ST. CROSSING C. & P. RR.
OFFICE: 379, EUCLID AVE. } CLEVELAND, O., U. S. A.

AGENCIES IN ALL PARTS OF THE WORLD.

THE BRUSH ELECTRIC CO., the "parent Company," has the sole and exclusive right for this country to manufacture the various Electrical inventions of CHARLES F. BRUSH, M.E. Ph. D. The most prominent of these inventions are his—

DYNAMO-ELECTRIC MACHINES.
ELECTRIC LAMPS, CARBONS.
APPARATUS FOR THE STORAGE OF ELECTRICITY.
APPARATUS FOR PRODUCING POWER FROM ELECTRICITY.
AUTOMATIC CURRENT GOVERNORS.
APPARATUS FOR ELECTRO-PLATING, ETC., ETC., ETC.

These inventions are protected by a large number of patents, which have been secured with the greatest pains, and are rightly considered to be the most valuable patents of the kind ever obtained.

The Brush Electric Light apparatus is the only one in the market that confirms to the requirements of the Insurance Companies. Mr. BRUSH has the only patent, either for an automatic cut-out for lamps, or for an automatic current governor for machines, and it is the only apparatus that can be used with entire safety in mills, factories, stores, etc., etc.

OVER 20,000 LIGHTS IN USE.

Digitized by Google

J. A. BERLY,

Civil & Electrical Engineer & Patent Broker,

16, NEW BRIDGE STREET,

LONDON, E.C.

Proprietor of J. A. BERLY'S British, American and Continental ELECTRICAL DIRECTORY.

English Correspondent of "THE ELECTRICIAN" of New York, and "L'ELECTRICIEN" of Paris.

PATENTS (Engineering and Electrical) taken out, worked out, and negotiated both in England and on the Continent of Europe.

NOTHOMB'S PATENT INCANDESCENT LAMP,
10 to 300 Candle Power.

DEVÈS ELECTRO MOTOR.

HAJNIS' (of Prague) PATENT ARC LAMP.

MONDOS PATENT ARC LAMP.

ETIENNE'S PATENT SYSTEM OF TELEGRAPHY,
(Saving of Time, 50 %; saving of Paper Band, 75 %.)

J. G. T. WOOD'S PATENT ACCUMULATOR.

J. G. T. WOOD'S PATENT CARBON PENCILS.

J. A. BERLY, C.E., A.S.T.E., &C.,

16, New Bridge Street, London, E.C.

See also ENGLISH Section Pages; FRENCH Section Pages; BELGIAN Section Pages.

Digitized by Google

A. L. BOGART,
Electrician,

PATENTEE AND MANUFACTURER OF IMPROVED

ELECTRIC GAS-LIGHTING APPARATUS,
ELECTRIC CALL BELLS, ANNUNCIATORS.

BURGLAR ALARMS.

22, UNION SQUARE, NEW YORK.

BOOKS, ETC., PUBLISHED BY W. J. JOHNSTON.

Postage prepaid

OAKUM PICKINGS: A miscellaneous collection of stories, sketches, essays and paragraphs, telegraphic and general. By John Oakum. With steel plate portrait of author. This book has had a very large sale, three different editions having been rapidly disposed of. 188 pp., paper, 50c.; cloth ... ... .75

WIRED LOVE: A Romance of Dots and Dashes. By Ella Cheever Thayer. An exceedingly interesting, amusing, and popular work, and the first and only telegraphic novel published. Every telegrapher should read it. "A good book to make you forget business and cares, and leaves pleasant memories behind it."—*Inter-Ocean*. 256 pp., cloth ... ... .75

SAM JOHNSON: The Experience and Observations of a Railroad Telegraph Operator. By J. Albert Clippinger, author of "The Pedagogue of Widow's Gulch." "Samson Papers," etc. "One of the most entertaining books in the whole library of railroad literature."—*Railroader*. 176 pp., paper, 75c.; cloth 1.00

PRACTICAL INFORMATION FOR TELEPHONISTS. By T. D. Lockwood, Electrician American Bell Telephone Company. A series of admirable papers on practical telephonic working (new). Cloth 1.00

TELEGRAPHIC TALES AND TELEGRAPHIC HISTORY: A Popular Account of the Electric Telegraph: its Uses, Extent and Outgrowths. By W. J. Johnston, Editor of THE OPERATOR. "It is seldom that a book containing so much substantial and not easily accessible material of a specific kind is commended to a wide audience by a careful and pleasing literary treatment."—*N. Y. Sun*. Second Edition, revised and enlarged. 286 pp., cloth 1.00

LIGHTNING FLASHES AND ELECTRIC DASHES: A volume of Choice Telegraphic Literature, Humour, Fun, Wit and Wisdom, in which all the brightest lights of the profession have banded together to give us a book well worth reading. 176 pp., cloth, illustrated. Price 1.00

GENERAL ULYSSES S. GRANT: His Early Life and Military Career, with a Brief Account of his Presidential Administration and Tour Around the World. By J. K. Larke. A desirable work at a low price. 512 pp., cloth 1.00

CHRISTMAS EVERGREENS: A Collection of Select Telegraphic and General Poetry. Elegantly illustrated and magnificently bound. Suitable for a present, or to adorn a centre table or book-case. Cloth; gilt edges 1.50

POEMS OF WILLIAM WORDSWORTH. Edited, with an introduction, by Richard Henry Stoddard. Elaborately illustrated; 320 pp., cloth, gilt edges 3.00

ENGRAVINGS OF MORSE AND EDISON, handsomely printed on fine tinted paper, uniform in size, 10 x 9, suitable for framing, 15c. each; the two for... ... ... .25

THE OPERATOR: A Journal of Telegraphic, Telephonic, Electrical Science and Literature. Published every Saturday. Subscription in advance, 3 months, 50c.; 6 months, $1; 1 year, $2. To Foreign Countries, postage added.

W. J. JOHNSTON, Publisher,
No. 9, MURRAY STREET, NEW YORK.

COMMERCIAL AND RAILWAY TELEGRAPHY,

By J. P. ABERNETHY, Supt. Tel.,

Second Edition, Revised and Enlarged. Boards, $1; Cloth, $1.50c.

PARKER C. CHANDLER,
President,
BOSTON, MASS.

HENRY C. ANDREWS
Treasurer,
ROOM 155, TEMPLE COURT, N.Y.

Union Electric Manufacturing Co.,
Nos. 7 & 9, BOND STREET, NEW YORK,

MANUFACTURERS OF

TELEGRAPH INSTRUMENTS, GOLD AND STOCK INSTRUMENTS, ELECTRIC LIGHT APPARATUS, DOMESTIC APPLIANCES, DISTRICT SYSTEM & FIRE ALARM BOXES, RAILWAY SIGNALS.

Dealers in ELECTRICAL SUPPLIES of all Kinds.

TELEGRAPH AND OTHER SIMILAR PAPER CUT AND WOUND TO ANY WIDTH OR SIZE OF ROLL.

Agents for sale of goods of the celebrated SILVERTOWN WORKS, LONDON.

AGENTS FOR THE AMERICAN INSULATOR CO.

AGENTS FOR THE CELEBRATED K. K. INSULATED WIRE.

F. W. JONES, Vice-President (Late General Circuit Manager W. U. Telegraph Co.)
RALPH W. POPE, Business Manager (Late Deputy Supt. G. & S. Telegraph Co.)
CHAS. D. HASKINS, Superintendent (Formerly of W. U. Telegraph Co.'s Manufactory).

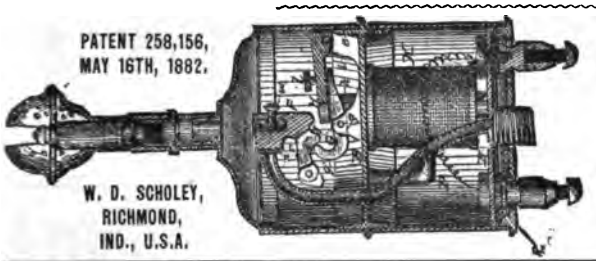
Digitized by Google

SCHOOLEY'S ELECTRIC STREET LAMP,

GAS LIGHTER & EXTINGUISHER. Also BURGLAR ALARM.

Invaluable for Lighting Burners difficult of access, such as Show Windows, Chandeliers, or Theatres and Churches.

W. D. SCHOOLEY, RICHMOND, IND., U.S.A.



Patent Burners, Protecting Hoods, Lightning Arrestors, and Switch-boards.

PATENTS FOR SALE, OR RIGHTS.

Advice given on Defective Inventions.

A NEW VOLUME. IN THE PRESS.

KNIGHT'S NEW

MECHANICAL DICTIONARY.

A DESCRIPTION OF

TOOLS, INSTRUMENTS, MACHINES, PROCESSES AND ENGINEERING,

With Indexical References to Technical Journals, (1876-1880),

By EDWARD H. KNIGHT, A.M., LL.D.

Chevalier de la Legion d'Honneur; Commissioner of the United States, Paris Exposition, 1878; Member of the International Juries, Philadelphia 1876, Paris 1878, and Atlanta 1881; Member of the Société d'Encouragement pour l'Industrie Nationale, Paris; of the Société d'Histoire et de Archélogie, Beaune; formerly Examiner and in charge of the Classification and Publications, United States Patent Office.

The Riverside Press, Cambridge, Mass.

The march of mechanical improvement, in the five years that have elapsed since the completion of **KNIGHT'S AMERICAN MECHANICAL DICTIONARY,** renders it necessary to issue another volume, to keep the work abreast of the time. The two great Exhibitions, at Philadelphia and Paris—with each of which the Author was officially connected as Delegate or Commissioner, and as a Member of the respective Juries—have brought forward a world of new matter; and the records of our own Patent Office, as well as the testimony of our technical journals, bear witness to the fact that at no period has invention been more fertile, more brilliant, or more important.

To be Completed in Four Sections, of 240 pages each, at $2.00 per section.

Section One ready in June, 1882; *Section Two ready in August*, 1882; *Section Three ready in October*, 1882; *Section Four ready in December*, 1882.

If there is no Agent in your vicinity, write to the Publishers, and they will direct an Agent to call on you and see that you are supplied.

HOUGHTON, MIFFLIN & COMPANY, Boston, Mass., U.S.A.

W. G. CLARK,

205, FEDERAL STREET, PORTLAND.

BANKS, STORES, HOTELS, PRIVATE DWELLINGS,

PROTECTED WITH

ELECTRIC FIRE AND BURGLAR ALARMS, ELECTRIC DOOR BELLS, AND CALL BUTTONS

INTRODUCED INTO BUILDINGS OF ALL KINDS.

Stables Protected by the Electric Burglar Alarm, Giving Notice in your Sleeping Chamber.

MONEY DRAWERS, SAFES, FRONT DOORS, GIVES INSTANT ALARM WHEN PROVIDED WITH

CLARK'S ELECTRICAL APPARATUS.

Does away with the old fashioned Door and Dining Room Bell.

ALL WORK PERSONALLY ATTENDED TO AND WARRANTED.

Digitized by Google

THE ANSONIA
BRASS AND COPPER CO.,
Nos. 19 and 21 CLIFF STREET,
NEW YORK CITY, U. S. A.



MANUFACTURERS OF

PURE ELECTRIC COPPER WIRE,

For Magnets, Telephones, Electric Lights, &c.,

With H. Splitdorf's Patented Liquid Insulation, covered with Cotton or Silk.

LINE WIRE.

FIRE PROOF HOUSE AND OFFICE WIRE FOR INDOOR USE IN ELECTRIC LIGHTING.

Wrought Metal Gongs, for Annunciators, Telephones, &c.,

ZINC RODS, BATTERY COPPER, &c.

F. M. DELANO. J. D. HAINES.

DELANO & HAINES,

PROMOTERS AND BROKERS,

No. 55, BROADWAY,

NEW YORK, U. S. A.

ELECTRICAL INVENTIONS A SPECIALTY.

COMPANIES ORGANIZED,

AND

CONTRACTS TAKEN FOR FURNISHING

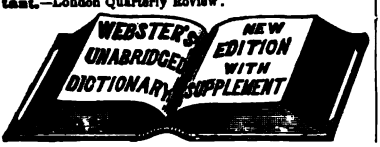
CAPITAL.

Digitized by Google

WEBSTER'S

WEBSTER'S UNABRIDGED.

The best practical English Dictionary extant.—London Quarterly Review.



The Latest Edition has 118,000 Words, (3000 more than any other English Diction'y,) **4 Pages Colored Plates, 3000 Engravings,** (nearly 3 times the number in any other Dict'y) also contains a **Biographical Dictionary,** giving brief facts concerning **9700 Noted Persons.**

"THE FAMILY EDUCATOR."—"A LIBRARY IN ITSELF."

"No family of children ought to be brought up without having ready access to this grand volume. It will answer thousands of questions to the wide-awake child. It is an ever-present and reliable school-master to the whole family."—*S. S. Herald.*

Published by G. & C. MERRIAM & CO., Springfield, Mass.

UNABRIDGED.

Arnoux & Hochhausen Electric Co.,

MANUFACTURERS OF

DYNAMO-ELECTRIC MACHINES,

FOR ELECTRIC LIGHTS,

ELECTROTYPING & ELECTRO-PLATING,

Nos. 221 to 227, EAST TWENTIETH STREET,

NEW YORK CITY, U. S. A.

Represented in London by

J. BOUGHTON CROSBY, Esq.,

Care of

Messrs. VALLANCE & VALLANCE,

20, ESSEX STREET, STRAND.

GRISCOM'S PATENTS.

MOTORS.

DOUBLE INDUCTION MOTORS, DYNAMOS, AUTOMATIC BATTERIES.

MANUFACTURED AND FOR SALE BY

THE ELECTRO DYNAMIC COMPY.

OF PHILADELPHIA, PA. U.S.A.

Digitized by Google

BRIDGEPORT BRASS CO.,

19, MURRAY STREET,

NEW YORK CITY, U.S.A.,

Manufacturers of Sheet Brass and Copper,

SEAMLESS & BRAZED BRASS & COPPER TUBING,

BRASS AND COPPER WIRE AND RODS,

GAS & KEROSENE BURNERS & TRIMMINGS,



The CELEBRATED LEADER BURNER, A SPECIALITY.

ELECTRIC COPPER WIRES, (Plain & Covered.)

Particular attention given to Cutting Blanks and Metals to order.

SAML. HOLMES, AGENT,

19, MURRAY STREET, NEW YORK.

Digitized by Google

ESTABLISHED 1859.

PLATINUM

TIN FOIL, &c.,

FOR ALL ELECTRICAL PURPOSES.

H. M. RAYNOR,

25, BOND STREET, NEW YORK.

POST AND COMPANY,

CINCINNATI, OHIO, U.S.A.,

Manufacturers of

All kinds of TELEGRAPH INSTRUMENTS, TELEPHONIC APPARATUS, consisting of MAGNETO BELLS (best and strongest made), SWITCH BOARDS (no Cords), EXTENSION BELLS, POWER GENERATORS, &c., &c.

AUTHORISED MANUFACTURERS OF

AMERICAN BELL TELEPHONE COMPANY'S BELLS, &c.

SEND FOR CATALOGUE.

Cable Address—

POST, CINCINNATI.

TO ELECTRICAL INVENTORS.

I beg to inform you that I make a speciality of preparing and prosecuting applications for

PATENTS FOR ELECTRICAL INVENTIONS,

and investigating and reporting upon the validity and scope of Patents. Simple diagrams and sketches, with description, are in most cases sufficient to enable me to prepare drawings of operative apparatus comprising new improvements. My fees will be as low as is consistent with thoroughness in the transaction of business. References to Electrical Inventors and Electricians for whom I have attended to patent matters will be furnished with pleasure.

W. B. HALE,

Formerly First Assistant Examiner in charge of Class of Electricity, U. S. Patent Office.

SOLICITOR OF AMERICAN AND EUROPEAN PATENTS.

P.O. Box, 227. **617, SEVENTH STREET, N. W., WASHINGTON, D. C., U. S. A.**

Digitized by Google

WM. J. BOWEN,

ELECTRICIAN,

AND DEALER IN ELECTRIC INSTRUMENTS AND SUPPLIES.

All kinds of Annunciators, Fire and Burglar Alarms, Electric Bells, Gas-Lighting Apparatus, Medical Batteries, Telegraph Instruments, &c. Lines built by contract. Everything Electrical furnished, put up and repaired.

SOLE PROPRIETOR AND MANUFACTURER OF THE

CHAMPION MECHANICAL TELEPHONE,

with Call Bells and Ear Tube attachments. The most successful and complete Telephone of its class. Unequalled for Private Lines, Railroad and Commercial use.

Address: WM. J. BOWEN, NORWALK, OHIO, U.S.A.

W. F. SHERIDAN & Co., Eastern Agents, 84, WALL STREET, NEW YORK, U.S.A.

GELATINIZED FIBRE,

THE GREAT INSULATOR.

This remarkable material is now very extensively used throughout the U.S. as a substitute for Hard Rubber for all kinds of in-door insulating, for various portions of Dynamo Electric Machines, Commutators, Magnet Heads, Switch Boards, Bases of Telegraph Instruments, Press-buttons, Electric Gas Lighting Appliances, &c., &c., and is meeting with Universal favour. It is **far superior** to the material known as "Vulcanized Fibre," and **equally cheap**, and **less than one half the price of Hard Rubber.** It is made in sheets of various thicknesses, in three colours, **RED, WHITE,** and **BLACK**, the later being a perfect imitation of Hard Rubber. Parties in Great Britain or on the Continent desiring to test the goods can mail Postal Order for Ten Shillings or more, and the value will be sent by Express, in such goods as are ordered.

COURTENAY & TRULL,

SOLE AGENTS,

No. 17, DEY STREET, NEW YORK, U.S.A.

PAINE & LADD,

SOLICITORS OF

American Patents, and Attorneys in Patent Cases,

412, FIFTH STREET,

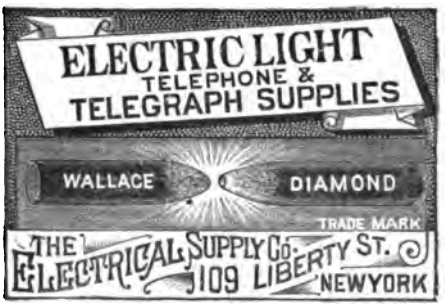
WASHINGTON, D.C.,

U.S.A.

HALBERT E. PAINE, LATE COMMISSIONER OF PATENTS.

STORY B. LADD.

Digitized by Google



THE HEISLER ELECTRIC LIGHT COMPANY.

CAPITAL, £200,000.

Manufacturers of HEISLER'S Patent Electric Light, Machines, Lamps, and Carbons.

THE ONLY SUCCESSFUL SMALL ARC TYPE LIGHTING IN EXISTENCE.

SINGLE CIRCUIT, OR SERIES SYSTEM, 24 TO 48 LIGHTS OFF ONE MACHINE.

FOCUSSING LAMPS FOR 16 HOURS DURATION.

Light Machines and Focussing Lamps for Locomotives.

ST. LOUIS, MO., U. S. A.

Managing Director.
CHARLES HEISLER.

President.
J. WYMAN JONES.

Vice-President.
W. H, THOMSON.

Secretary.
JOHN E. MULFORD.

Treasurer.
CHARLES B. PARSONS.

CAPITAL STOCK, 100,000 DOLLARS, FULL PAID.

Manufacturers of a superior quality of Carbon for Electric Lights. All sizes & lengths, plain & plated.

ST. LOUIS, MO., U. S. A.

BOULTON CARBON COMPANY.

CARBON POINTS

AND

PLATES FOR BATTERIES.

Prices upon Application.

CLEVELAND, OHIO, U. S. A.

Digitized by Google

1180 (NEW YORK CITY), BROADWAY.

A. G. NEWMAN,

MANUFACTURER OF

ELECTRIC BELLS, BURGLAR ALARMS, ANNUNCIATORS

AND

RUDOLF EINBIGLER'S VISUAL SIGNAL APPARATUS.

Estimates given for all the several modes of Bell Hanging, Tubing and Wiring for Gas Lighting, Burglar Alarms, Einbigler's Visual Signals, and Fire Alarms.

DEALER IN AND MANUFACTURER OF

FIRST-CLASS BUILDERS' HARDWARE.

DAVIS & WATTS,

BALTIMORE, MD., U.S.A.,

AUTHORIZED MANUFACTURERS

TO

American Bell Telephone Company.

Telephone, Telegraph, and General Electrical Supplies always on hand, Wholesale and Retail.

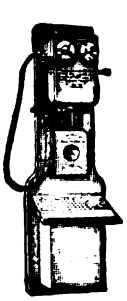
We make a Speciality of District Telegraph Apparatus of every description.

OUR DOUBLE AND SINGLE PEN REGISTERS, (Self-starting and self-stopping), are acknowledged to be the best in use.

Our Nickle Plated Signal Box, One to Five Indications, is yet unequalled in effectiveness and beauty.

WE AIM TO KEEP OUR PRICES AS LOW AS IS CONSISTENT WITH GOOD WORK.

CORRESPONDENCE SOLICITED.



CHARLES WILLIAMS, Jr.,

Telegraph & Telephone Instruments and Supplies,

109 & 115, COURT STREET, BOSTON.

ESTABLISHED 1856.

Digitized by Google

L. G. TILLOTSON & Co.,

5 & 7, DEY STREET, NEW YORK,

The Oldest & Largest Railway & Telegraph Supply House in America.

MANUFACTURERS, IMPORTERS AND DEALERS IN

TELEGRAPH, TELEPHONE & ELECTRICAL APPARATUS

OF EVERY DESCRIPTION—QUALITY GUARANTEED.

L. G. TILLOTSON & Co., 5 & 7, Dey Street,
NEW YORK, U. S. A.

KIDDER'S ELECTRICAL DEPOT,

820, BROADWAY, NEW YORK.

DR. JEROME KIDDER'S SUPERIOR ELECTRO-MEDICAL APPARATUS

Received the **Highest Award** at the Centennial Exposition, **Highest Award** at the American Institute from 1872 to 1881 inclusive, and in 1875 the **Gold Medal** for the best Electro-Medical Apparatus manufactured; also at Cincinnati Industrial Exposition, **Two Silver Medals,** (highest award given) in fall of 1881.

Our Machines are universally recommended by Scientific Practitioners on account of their different Physiological qualities of Electricity to cure diseases. The Tip Battery Apparatus (*see cut*) is a perfect and convenient apparatus, the invention of Dr. Kidder. We manufacture a complete line of Tip Cell Batteries, with Rubber Caps. By tipping the box, the battery is charged or uncharged at pleasure, and can be transported without spilling the solution.

Also powerful Galvano Caustic Batteries, with improved instruments that will stand the intense heat. To distinguish the Genuine from the Spurious, address for Illustrated Catalogue, (Mailed Free).

JEROME KIDDER MANUFACTURING COMPANY,
820, BROADWAY,
NEW YORK, U.S. AMERICA.

BOSTON & SANDWICH GLASS CO.,

17, MURRAY STREET,

P.O. Box, 1,728. **NEW YORK CITY, U.S.A.**

Represented by C. E. L. BRINKERHOFF.

MANUFACTURERS OF

GLASS WARE OF EVERY DESCRIPTION.

Special attention given to Electrical Glass Supplies.

Digitized by Google

ARTISTIC PRINTING.

I make a specialty of Fine Color Work, and guarantee satisfaction in Artistic Design, Quality, and Price. Estimates cheerfully given for all Electric or other work. Pamphlets, Circulars, and Catalogues with Cuts at reasonable rates.

WILLIAM KNOWLES,

Book and Card Printer,

104, EAST 13TH STREET, NEW YORK CITY, U.S.A.



JEROME REDDING & Co.,

30, HANOVER STREET,

BOSTON, MASS., U.S.A.

Manufacturers of

ELECTRIC BELLS,

ANNUNCIATORS,

BURGLAR ALARMS,

LEARNERS INSTRUMENTS

LECLANCHE BATTERIES,

AND

ELECTRIC GAS LIGHTING APPARATUS OF EVERY DESCRIPTION.

DICTIONARY OF ELECTRICITY, ELECTRICAL TERMS, AND APPARATUS.

By F. H. GREER, Electrician, and WM. L. ALLISON, Author of "Allison's Webster's Dictionary.

Nearly 100 illustrations of Electric Machines, Dynamos, Lamps, etc., and descriptive text embracing the Technology of Electricity and related Sciences.

One Vol. 16mo. extra cloth. Price £2.

FOR CATALOGUE ADDRESS

WM. L. ALLISON, Publisher, Tribune Buildings, New York City, U.S.A.

Digitized by Google

REDMAN & KENNY,

DESIGNERS AND ENGRAVERS ON WOOD.

The old and well-known house of Redman & Kenny, has been established 25 years, who carry on business as Wood Engravers, supply Medals of all the Fairs, all sizes, Lapped or Single.

ESTIMATES FURNISHED FOR WOOD ENGRAVING.



A great feature is made of Electrotypes of Medals awarded by the Electric, Paris, 1881, Universelle, 1867 and 1878. Berlin, Vienna, London, Sydney, Melbourne, Chili, American Institute, Boston, Centennial, Philadelphia.

52, JOHN STREET, NEW YORK, U. S. A.

THE
COE BRASS MANUFACTURING Co.,

TORRINGTON, CONN. (U.S.A.)

MANUFACTURERS OF

SHEET BRASS, COPPER, AND GERMAN-SILVER,

Brass, Copper, and German Silver Wire and Rods.

ZINC RODS FOR BATTERY PURPOSES.

PURE COPPER WIRE made from BEST LAKE.

SUPERIOR COPPER, Conductively Guaranteed.

BLANKS AND SHELLS MADE TO ORDER FROM BRASS, COPPER, OR GERMAN SILVER.

WESTERN ELECTRIC COMPANY.

CHICAGO. NEW YORK. INDIANAPOLIS.

MANUFACTURERS OF

Telegraph Instruments and Supplies,
Electric Gas-Lighting Apparatus,
Hotel and House Annunciators,
Underground and Aerial Cables,
Burglar Alarm and Call Bells,
Telephone Exchange Annunciators,
Electro-Mercurial Fire Alarm,
Switch Boards, etc., etc.,

AND TELEPHONIC APPARATUS OF EVERY DESCRIPTION.

Has the three largest and best equipped Manufactories of Electrical Goods in America.

Digitized by Google

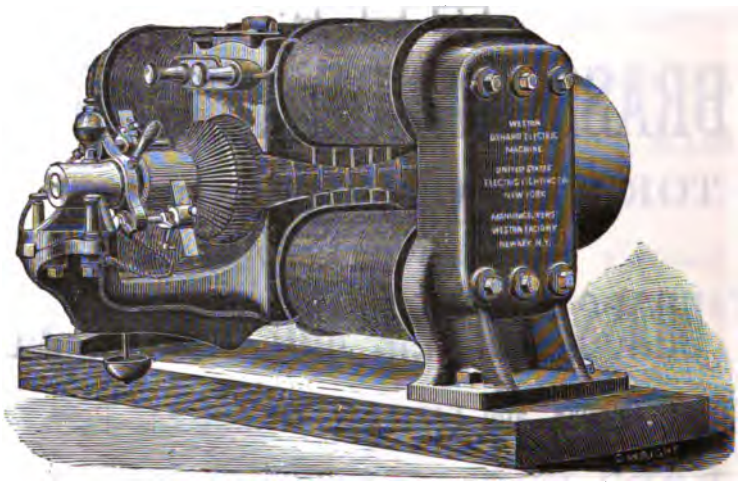
THE UNITED STATES ELECTRIC LIGHTING CO.,

MANUFACTURERS OF

COMPLETE SYSTEMS OF APPARATUS FOR ARC & INCANDESCENT LIGHTING,

ELECTRO-PLATING MACHINES, ELECTRIC MOTORS, &c.

Sole Owners for the United States of the Patents of WESTON, MAXIM, FARMER, and Others.



THE WESTON DYNAMO ELECTRIC MACHINE.

THE WESTON ARC LAMP.

THE MAXIM INCANDESCENT LAMP.

GEORGE W. HEBARD	PRESIDENT.
MARCELLUS HARTLEY	VICE-PRESIDENTS.
ANSON PHELPS STOKES	
CHARLES R. FLINT	
LOUIS FITZGERALD	TREASURER.
L. E. CURTIS	SECRETARY.

GENERAL BUSINESS OFFICES:—

120, BROADWAY, NEW YORK, U.S.A.

Factory:—NEWARK, NEW JERSEY, U.S.A.

SEND FOR CATALOGUE.

Digitized by Google

THE OPERATOR,

A WEEKLY JOURNAL FOR

TELEGRAPHISTS, TELEPHONISTS & ELECTRICIANS,

NOW IN ITS FOURTEENTH VOLUME.

Subscription, in America, $2 per Annum. To England, France, Germany, Australia, or any Country in the Universal Postal Union, $2 50 cents, or 10/- per Annum, which includes Postage.

THE OPERATOR is carefully edited in every department, by a large and well-chosen editorial staff, and thoroughly covers the fields of **Telegraphy, Telephony,** and **Electric Lighting.** Its contents may be briefly described as a **Current History of Electricity,** in its many and diverse applications. Instructive, broad and impartial, absolutely independent, eminently readable. **The Operator** is unique among journals, and is now in the full tide of prosperous usefulness. It goes to every country in the world wherever the English language is read, and has by many thousand the largest circulation among regular paying subscribers of any Electrical Paper published. Sample Copies mailed free. Send for one.

As a medium for reaching Telegraphists, Telephonists, and Electricians, especially those in America, **The Operator** is unsurpassed, while the Advertising rates are exceedingly reasonable for so large and desirable a Circulation.

Subscriptions sent to Mr. H. ALABASTER, 22, Paternoster Row; E. & F. N. SPON, 16, Charing Cross; or CYRUS F. WILLARD, 31, Queen Victoria Street, London, England, or to ROBERT G. BROWN, 41, Rue Caumartin, Paris, France, will be filled at regular Publishers' rates. In addition to these, the Paper can be ordered through almost any Newsdealer. Or send (money can generally be forwarded by Postal Money Order without trouble; if not, send Foreign money) direct to

W. J. JOHNSTON, Publisher,

No. 9, MURRAY STREET, NEW YORK.

☞ Mr. JOHNSTON has recently published an excellent work by Mr. T. D. LOCKWOOD, Electrician, American Bell Telephone Company, Boston, called "Practical Information for Telephonists." The sales have already been very large, both in America and Europe. Copies will be mailed, postage prepaid, to any country in the Universal Postal Union, on receipt of the price $1. A Copy of any other Electrical Scientific Book published will be mailed, **Postage prepaid,** to any country in the Universal Postage Union, on receipt of the price. Send to me for any book you want.

First Premium awarded at Pennsylvania State Fair, 1880.

A. F. FLEISCHMANN,

MANUFACTURER AND CONTRACTOR OF ELECTRICAL APPARATUS GENERALLY,

No. 27, SOUTH TENTH STREET,

PHILADELPHIA, PENNA., U.S.A.

SEND FOR CATALOGUE.

Digitized by Google

Digitized by Google

J. A. BERLY'S

CANADIAN

ELECTRICAL DIRECTORY.

Electric Alarms, Batteries, Insulated Wires, Zincs, Carbons, &c.

F.—Appareils électriques.
G.—Electrische Apparate.

Chantelouys, E. 587 & 57 Craig st. Montreal.
Mitchell, Robert & Co. 672, Craig st. Montreal.
Montreal Electrical Supply Co. Montreal.

Electric Bells, Signals, &c.

F.—Sonneries électriques.
G.—Electrische Glocken.

Chantelouys, E. 587 & 97, Craig st. Montreal,
Frome, T. J. 94½, Front st. E. Toronto.
Montreal Electrical Supply Co. Montreal.

Electric Belts.

F.—Ceintures électriques.
G.—

A. Norman, 4, Queen st. E. Toronto.

Electric Telegraph Instruments.

F.—Instruments télégraphiques
G.—Telegraphische Instrumente.

Chantelouys, E. 587 & 97, Craig st. Montreal.
Frame, T. J. 94½, Front st. E. Toronto
Mitchell, Robert & Co., 672, Craig st. Montreal.
Montreal Electrical Supply Co., H. J. McHugh, Manager, 45, Alexander st. Montreal.

Electricians.

F.—Electriciens.
G.—Electriker.

Yuil, James, Winnipeg, Manitoba.
McHugh, H. J. Montreal.
Norman, A. Toronto.

Electro-Magnetic Machines.

F.—Machines magneto-électriques.
G.—Electro-magnetische maschinen.

Gross, F. 686-90, Craig st. Montreal.
Montreal Electrical Supply Co. Montreal.

Electroplaters.

F.—
G.—Galvanische Vernilberung.

Archer, David, 804, Craig st. Montreal.
Narcisse, Beaudry & Bro., 180, Notre-Dame, Montreal.
Hendery, R. 134, St. Peter st. Montreal.
Rubenstein Bros., 537, Craig st. Montreal.

Electrotypers.

F.—Galvanoplastic.
G.—Galvanoplastik.

Diver, F. & Co. 14, King st. East Toronto.
Dominion Type Founding Co., 13-17, Chenniville st. Montreal.
Fleming & Son, Toronto.
Morrison A. & Son, 597, Craig st. Montreal.
Wiseman, James L. 49, John st. Montreal.

Digitized by Google

TELEGRAPH OFFICES.

MONTREAL AND DOMINION LINES OPERATED BY THE GREAT NORTH WESTERN TELEGRAPH COMPANY.

Companies holding Charters for Electric Lighting purposes.

THE MONTREAL ELECTRIC LIGHT COMPANY (EDISON'S SYSTEM).

CAPITAL, 250,000 DOLS.

THE EDISON ELECTRIC LIGHT COMPANY (EDISON'S SYSTEM)

CAPITAL, 250,000 DOLS.

THE CANADIAN ELECTRIC LIGHT COMPANY (MAXIM'S).

CAPITAL, 1,000,000 DOLS.

THE AMERICAN ELECTRIC LIGHT COMPANY (EDISON'S).

CAPITAL, 100,000 DOLS.

THE QUEBEC & LEVI'S ELECTRIC LIGHT CO., (EDISON'S SYSTEM).

CAPITAL, 100,000 DOLS.

Digitized by Google

SECONDE EDITION—REVUE ET AUGMENTÉE.

L'ANNUAIRE ELECTRIQUE

Anglais, Américain et Continental

DE

J. A. BERLY.

LE "VADE MECUM" DE L'ELECTRICIEN,

CONTENANT

UNE LISTE COMPLETE DE TOUTES LES INDUSTRIES

SE RATTACHANT, DIRECTEMENT OU INDIRECTEMENT À

L'ELECTRICITÉ OU AU MAGNÉTISME,

AINSI QU'E

LES NOMS ET ADRESSES DES FABRICANTS, ETC.,

EN ANGLETERRE, AMERIQUE ET LE CONTINENT D'EUROPE,

CLASSIFIÉS PAR INDUSTRIES.

PRIX 10 FRANCS.

LONDRES:

PUBLIÉ PAR WM. DAWSON & SONS, 121, CANNON STREET, E.C.
J. A. BERLY, 16, NEW BRIDGE STREET, E.C.

NEW YORK:
GEO. CUMMING, 219, EAST 18TH ST.

BERLIN:
BERTH. MENDEL, LÜTZOWSTR. 84, W.

(Entered at Stationers' Hall.)

Digitized by Google

PRÉFACE.

L'AUGMENTATION, tant comme importance que comme dimensions, de cette édition, la deuxième, du "VADE MECUM DE L'ELECTRICIEN," prouve que nous n'avions, lors de la publication de la première édition, l'année dernière, rien exagéré en affirmant, dans la Préface, qu'étant donnés les développements récents et sans précédents des industries électriques, l'existence d'un ouvrage de cette nature était devenu une nécessité.

Ce fait nous a été maintenant complétement démontré; et la faveur qui a été accordée à cette publication, le succès qu'elle a obtenu, et l'intérêt considérable avec lequel cette seconde édition est attendue de tous côtés, sont autant de preuves que l'ouvrage répond à un besoin reconnu de toutes les professions ou industries se rattachant directement ou indirectement à l'électricité ou au magnétisme.

THE ELECTRICAL DIRECTORY ou L'ANNUAIRE D'ELECTRICITÉ a été complétement révisé et considérablement augmenté. Il contient, maintenant, une section américaine et une section continentale; et la première de celles-ci est d'une importance telle que nous avons dû légèrement modifier le titre de l'ouvrage.

L'on nous a demandé: "Qu'est-ce que certaines industries ont de commun avec l'Electricité?"—Le public lui même s'est chargé de répondre en contractant spécialement pour avoir quelques unes des industries les plus indirectes soumises à l'attention des grandes compagnies électriques et des électriciens.

Aucun effort n'a été épargné pour rendre l'ouvrage aussi complet et intelligible que possible; nous ne doutons cependant aucunement qu'il reste beaucoup à faire pour le rendre parfait.

Pour arriver à ce but désirable nous emploierons toute notre énergie et resterons toujours obligés envers ceux de nos souscripteurs et correspondants qui voudront bien continuer à nous rendre notre tâche possible en nous faisant parvenir leurs noms, adresses, etc., aussi bien que tous autres renseignements en leur possession et de nature à contribuer à l'utilité de l'ouvrage.

En soumettant notre ouvrage à la critique du public, nous saisissons l'occasion pour remercier nos nombreux amis et correspondants, dont la bienveillante assistance nous a été d'une si grande utilité, et particulièrement Mr. GEORGE CUMMING, de New-York et Herr BERTHOLD MENDEL, de Berlin, qui ont édité et révisé les sections américaine et allemande.

J. A. BERLY

LONDRES, 31 *Décembre* 1882. *C.E., A.S.T.E. etc.*

Digitized by Google

ANNUAIRE ELECTRIQUE,

J. A. BERLY.

PARIS—PROFESSIONS.

Accumulateurs d'Electricité.

E.—Accumulators.
G.—Accumulatoren.

Kabath, N. de, avenue d'Opera, 25.
Planté, G., rue des Tournelles, 56.

Aimants (Fabr. d'),

E.—Magnets.
G.—Magnete.

Biloret A. et C. Mora, boul. Richard-Lenoir, 93.
Dany et Lepage, Faub. St. Martin, 59, et boul. de Strasbourg 30.
Digney frères, rue des Poiteoins, 4, 6, et 8.
Luizard, L., rue d'Arcole, 21.
Molteni, rue du Château d'Eau, 44.
Morigrat, rue de Charonne, 195, et boul. de Charonne, 123.

Allumoir-Electrique.

E.—Electric Apparatus for Lighting Gas.
G.—

Dronier (L. Aeveur succ.) rue de Filles-du-Calvaire, 16.

Appareils servant aux mesures électriques.

E.—Electrical Testing Instruments.
G.—Probirinstrumente für Electricität.

Bigeon, rue de la Tombe-Issoire, 75.
Breguet, Anai de l'Horloge, 39.
Carpentier, J. A. M. L., successeur de Rahamkorff, rue Champollion, 15.
Delaurier, E., rue Daguerre, 77.
Deschiens, J. E., boul. Saint-Michel, 123.
Digney frères, rue des Poitevins, 6 et 8.
Ducretet et Cie., rue des Feuillantines, 75.
Dummoulin-Froment, rue Notre-Dame-des-Champs, 85.
Estienne, boul. de Vaugirard, 132.
Gaiffe, L. A., rue St. André-des-Arts, 40.
Gérard, Anatole, passage Cotten, 8.

Appareils servant aux mesures électriques—*continué.*

Hardy, Hayet et Lignereux, successeurs, avenue La Motte-Piquet, 6.
Jacques, Ernest, rue Bertrand, 26.
Legras, F. T., avenue de Paris, 81, Saint-Denis.
Leguay, E., rue de la Tombe-Issoire, 79 et 81.
Lenczewski, L. et Cie., rue Montagre-Sainte-Geneviève, 25.
Marcillac, P. A. M., passage Bosquet, 19.
Mercadier, E., rue de Burgoyne, 65.
Noé, C. F., rue Laromiguière, 9.
Postel-Vinay, rue Vaneau, 38.
Solignac et Cie., rue St.-Maur, 208.
Trouvé, G., rue Vivienne, 14.

Bains Electriques.

E.—Electric Baths.
G.—Electrische Bäder.

Barda, Dr. Basile, rue Blanche, 49.
Gautier, V., Hydrothérapie, rue Sévigné, 11.
Gocel, Mme., boul. Sébastopol, 77.
Potin fils, avenue de St. Mandé.

Boussoles.

E.—Compass Makers.
G.—Compass-Macher.

Duchemin, rue Clapugron, 25.
Godfrin, Faub. St. Martin, 52.

Brevets d'Invention.

E.—Patent Agencies.
G.—Patent-Bureau.

Action Co-opérative, rue des Halles, 11.
Agence Anglaise et Francaise, Bonneville, Chaussée-d'Antin, 8.
Armengaud ainé, 45, rue St. Sebastien (boul Voltaire).
Armengaud jeune, boul. de Strasbourg, 23.
Blétry frères, boul. de Strasbourg, 2.
Casalonga, rue des Halles, 15.
Desnos, Ch., boul. Magenta, 11.

Digitized by Google

Caoutchouc et Gutta-Percha Bruts.

E.—Indiarubber Dealers.
G.—Caoutchouc-Händler.

Bonnefoy, J. B., pl. des Vosges, 15.
Hecht frères et Cie., rue du Château-d'Eau, 20.
Lavialle, P. fils, rue Sévigné, 30.
Lerchenthal, Hn., rue Montmorency, 16.
Morellet, Aug. (les fils de), rue Sévigné, 27.
Norat, C., rue de Maubeuge, 39.
Oulmann, G., rue de l'Entrefôt, 30.
Sarassin, E., rue du Château d'Eau, 27.
Venot, A. et P. St. Germain, rue de la Barbette, 2.

Caoutchouc Manufacture.

E.—Indiarubber Manufacturers.
G.—Gummi-Fabr.

Anderson, Abbott et Anderson, rue Martel, 8.
Bageau, H., rue Bichat, 29.
Bar, E., boul. Sébastopol, 46.
Barge, rue de la Paix, 15.
Baux, F., rue Charlot, 10.
Berguerand, F., père et fils, rue des Archives, 16.
Berlyn, A., boul. Sébastopol, 16.
Bernard, M., rue de Turbigo, 48.
Bernier (Vve. Félix) et Cie., rue Vivienne, 2.
Bloc, L., rue des Petites-Ecuries, 56.
Boileau, Faub. St. Martin, 52.
Bouley, P. et Cie., magarin rue Notre-Dame de Nazareth, 12; usine rue des Entrepreneurs, 43.
Brunessaux, J., rue St. Denis, 89.
Calisch, O. A., cité Trévise, 12.
Caramello, M., passage Thévin, rue Mercœur, 17.
Casasse et Verstraet (Leteelier et Verstraet successeurs), rue de Turbigo, 47.
Charlot et Cie., rue St. Ambroise, 25.
Claude, H., Faub. Poissonière, 48.
Decourdemanche et Cie., rue d'Aboukir, 2.
Degeorges, rue de la Grande-Truanderie, 45.
Degrave, Emile, Depositaire à Paris, Boitel, rue d'Enghien, 27.
Deiss, E., rue Volta, 15.
Denayrouze, L., rue St. Pétersbourg, 30.
Gottschalk et Cie., Faub. St. Martin, 76.
Goulard, A. (T. Mercier successeur), boul. Magenta, 31.
Guibal, C., depôt à Paris, rue Vivienne, 40.
Guellaume fils ainé, rue du Temple, 51.
India Rubber Gutta Percha and Telegraph Works Co., Limited, boul. Sébastopol, 97.
Lerenard fils et Benjamins, rue Trévise, 49.
Mager, A., rue d'Aboukir, 11.
Martiny, J. L. et Cie., usines à St. Denis, bureau á Paris, rue des Petites-Ecuries, 13.
Menier, rue de Théâtre, 7, Paris-Greneller.
Rattier et Cie., rue d'Aboukir, 4.
Torrilhon Verdier et Cie., rue d'Enghien, 25.

Carbons électriques.

E.—Electric Carbons.
G.—Elcetrische Kolen.

Carré, E., rue de l'Estrapade, 19.
Mignon et Rouart, boul. Voltaire, 157, 1.
Sautter, Lemennier et Cie., avenue de Suffren, 26.

Compteurs de Tours.

E.—Revolution Counters.
G.—

Buss, W. A., rue Desaix, 1.
Deschiens, Eng., boul. St. Michel, 123.
Sainte, A., rue Taylor, 22.

Courroies pour transmission de mouvement.

E.—Driving Bands.
G.—Maschinenrieme.

Berguerand pière et fils, rue des Archives, 16.
Bisma, H. Van, boul. de Strasbourg, 43.
Chenou, rue St. Quentin, 22.
D'Esping, Ch., avenue Parmentier, 11; et rue de la Roquette, 118 bis.
Doche, rue St. Maur, 14.
Domange, Lemierre et Cie., successeurs de E. Scelles, boul. Voltaire, 74.
India Rubber, Gutta Percha, & Telegraph Works Company, Limited, boul. Sebastopol, 97.
Martiny, J. L. et Cie., rue des Petites-Ecuries, 13.
Masson, rue Popincourt, 52.
Menier, rue du Théâtre, 7, Paris-Grenelle.
Paillart, Gme. (P. Boulland successeur), Faub. St. Martin, 171, usine à Boligny (Seine).
Smith & Coventry, rue Alibert, 10.

Cristalleries.

E.—Glass Works.
G.—Glas-Fabr.

Baccarat, Cie. des Cristalleries de, rue Paradis-Poissonnière, 30 bis.
Cristallerie de Lyon, Société anonyme de la, rue Paradis-Poissonnière, 50.
Lissaute et Cosson, rue Martel, 12.
Maës frères, cour des Petites-Ecuries, 9.
Paris, E. et Cie., rue Paradis-Poissonnière, 47.
Saint-Louis, Cie. des Cristalleries de, Dépôt à Paris, rue Paradis, 30.

Cuivre.

E.—Copper.
G.—Kupfer.

Borzecki, A., boul. Magenta, 46.

Eclairage Electrique.

E.—Electric Lighting.
G.—Electrisches Licht.

Baudet, Cloris, rue St. Vichor, 90. *(Voir aussi index des annonces.*
Clemançon, rue Lamartin, 23.
Cie Parisienne d'Eclairage par l'Electricité, rue Dufrénoy, 25.
Delaporte, G., rue des Bourdonnais, 33.
Duboscq, J. et A, rue de l'Odéon, 21.
Ducomman, boul. Magenta, 18.
Edison, avenue de l'opéra, 33.
Fontaine, H., rue Droust, 15.

Digitized by Google

Eclairage Electrique—*continué.*

Reynier, E., rue Benouville, 3.
Sautter, L. Lemonnier et Cie., avenue de Suffren, 26. *(Voir aussi index des annonces).*
Société d'Eclairage Electrique, rue Lecourbe, 250.
Solignac et Cie., rue St. Maur, 208.

Electriciens.

E.—Electricians.
G.—Electriker.

ARLINCOURT, LUDOVIC CHAS. ADRIEN JOSEPH, Cte., GUYOT d', 6, avenue de Montespan, Passy; Atelier, 86, rue de Miromesnil, dirigé par Mr. G. Cazésus.
Découverte par Mr. d'Arlincourt de l'inversement magnétique produit dans un électro-aimant par la simple rupture d'un courant électrique en plaçant la palette à la culasse de l'électro-aimant. Cet électro-aimant s'applique à tous les appareils perfectionnés par Mr. d'Arlincourt. Imprimeur autographique et relais de translation.
Chevalier de St. Stanislas de Russie et de la Rose du Brésil. Officier de la Légion d'Honneur.
Médailles d'or aux Expositions internationales et universelles de 1867, 1878, 1881. Diplôme d'Honneur à l'Exposition universelle de Vienna, 1873.
Bernard, Julien, Faubourg du Temple, 4.

Electricité appliquée aux sciences, à l'industrie, à la medicine et aux arts.

E.—Electrical Apparatus Manufacturers.
G.—Electrische Apparate—Fabr.

Achard, A., rue de Provence, 60.
Alvergnist frères, rue de Sorbonne, 10.
Ancelet, Th., boul. Edgar-Quinet, 18.
Andriveau, G., rue Campagne-Première, 5.
Ateliers, Ducommun, boul. Magenta, 18.
Aubry, A., boul. St. Michel, 6.
Barbe, E., boul. Voltaire, 156.
Barbier, E., rue Fromentin, 9.
Barbier et Fenestre, rue Curial-Villette, 82.
Baudet, Cloris, rue St. Victor, 90.
Biloret, A., et C. Mora, boul. Richard-Lonoir, 93.
Bonnet, G., boul. des Filles-du-Calvaire, 5.
Borel-Martinaud, avenue de Neuilly, 85.
Borrel (successeur de J. Wagner), rue des Petits-Champs, 47.
Breguet, quai de l' Horloge, 39.
Breton frères, rue des Ecoles, 52.
Brewer frères, rue St. André-des-Arts, 43.
Carpentier, J., rue Champollion, 15; et rue Delambre, 20.
Casanova, J., rue Marcadet, 98.
Chardin, Ch., r. de Chateaudun, 5, et r. Buffault.
Chaudron, L., boul. St. Germain, 229.
Chertemps, A., passage St. Sébastien, 11 bis.
Chevallier, L. B., rue du Pressoir, 24.
Combettes, L. de, constructeur d'appareils électriques et electro-magnétiques, rue de Bondy, 92.
Cie. Parisienne d'Eclairage par l'Electricité, rue Dufrenoy, 25.

Electricité appliquée aux sciences, à l'industrie, à la medicine et aux arts —*continué.*

Courtot, C., télégraphe, bobines Ruhmkorff, appareils médicaux, téléphone, rue Caumartin, 75
Dany et Lepage, électros medicaux Anglais, Faub. St. Martin, 59, et boul. de Strasbourg, 30.
Defrançois, G., place Dauphine, 24.
Delaporte, G., appareils d'Eclairage Electrique et Oxyhydrique, rue des Bourdonnais, 33.
Delevil fabrique de piles de Bunsen, rue des Fourneaux, 42.
Deschiens, Eug., instruments de précision, télégraphie, &c., boul. St. Michel, 123.
Desroziers, rue de l'Echiquier, 42.
Desruelles, L., fournisseur des chemins de fer français et étrangers, avenue Percier, 8 bis, et rue La Boétie, 136.
Douce et Cie., fabrique de sonneries électriques, rue de Rivoli, 116.
Ducretet, E. et Cie., rue Claude-Bernard, 75.
Edison, lumière électrique, avenue de l'Opera, 33.
Félix, C., mécanique électrique, applications d'électricité au labourage, aux mines, &c., rue St. Lozare, 28.
Fichet, A., ingenieur expert du jury d'éclairage à l'exposition, 1878, rue des Martyrs, 19.
Fontenilles, V., Constructeur de sonneries et signaux électriques, &c., boul. Haussmann, 38, et Chaussée-d'Antin, 15.
Fortein, J. H., construction et pose d'appareils électriques, rue de Varenues, 27.
Gallais, A., boul. de la Villette, 73.
Gérard, A., passage Cottin, 8.
Gouamier (Cornette successeur), fournisseur des ministères, rue Michel-le-Comte, 23.
Grin, seul fabr. brev. s. g. d. g., de la petite horloge solaire, rue Hippolyte-Lebas, 6.
Guérin, Ch., sonneries électriques, porte-voix, rue de Naples, 72.
Guérin, E., appareils de demonstration, rue Montmorency, 5.
Guérot rue Daguerre, 57.
Guesdon-Leprince, rue Montorgueil, 67.
Hardy, E., avenue de la Motte-Picquet, 6.
Hasle fils, rue Chanoinesse, 24.
Hempel, O. et Cie., quai des Grands-Augustins, 55.
Henry-Lepaute, horlogerie, phares et projecteures électriques, rue Lafayette, 6.
India Rubber, Gutta Percha and Telegraph Works Co., Limited, boul. Sébastopol, 97.
Jarriant jeune, fils télégraphiques, rue Bélidor, 10.
Jarriant, ci-devant rue du Marché, St. Honoré, 31, actuellement rue Pierre-Charron, 25.
Journaux, J., construction de toutes sortes d'appareils de précision, &c., rue de Cévenues, 56, Paris-Grenelle.
Lapointe, G., rue St. Sébastien, 9.
Laurent, rue de l'Odéon, 21.
Lausberg, G., rue Pastourelle, 32 et 34.
Le Brun, H., rue Pastourelle, 32 et 34.
Leclerc, F. (voir A. Gallais succ.)
Leguay, E., rue de la Tombe-Issoire, 79.
Lelièvre, A., rue des Coutures, St. Gervais, 6.

Digitized by Google

Electricité appliquée aux sciences, à l'industrie, à la medicine et aux arts —*continué.*

Le Roy, Ch., rue du Maine, 3.
Lesieur, rue des Deux-Portes, 6.
Loiseau, A. fils, allumage instantanté, rue de Richelieu, 29.
Loret, appareils électro-médicaux, rue Mignon, 5.
Luizard, L. rue d'Arcole, 21.
Mathieu, Alph, horlogerie électrique, rue Saint-onge, 20.
Meritens, A. de, machines magnéto-électriques, rue Boursault, 44.
Mignon et Rouard, constructeurs-mécaniciens, boul. Voltaire, 137.
Mors, L. (successeur de P. Prudhomme), ingénieur civil, rue St. Martin, 4 bis.
Noé, Ch, rue Laromiquière, 9.
Osselin, E., ingénieur-électricien; inventeur et fabricant breveté des bogues électro-magnétiques, rue du Maine, 3, Asnières, Seine.
Parent, J., moteurs électriques puissants, &c., rue Debelleyme, 19.
Pulvermacher, J. L., appareils électro-medicaux, rue St. Martin, 239.
Rattier et Cie., fabricants de fils et cables télégraphiques, rue d'Aboukir, 4.
Reynier, E., engénieur, piles électriques et accumulateurs, rue Benouville, 3.
Rodiguet et fils, bobines de Ruhmkorff, &c., boul. des Filles-du-Calvaire, 15.
Royer, L., rue St. Martin, 225.
Ruhmkorff (voir Carpentier, J.)
Sautter, Lemonnier et Cie., construction de machines de gramme, avenue de Suffren, 26.
Seguy et fils, spécialité de Tubes de Geissler, rue de Monsieur-le-Prince, 53.
Serrin, Vor., inventeur du Regulateur Automatique de la lumière électrique, boul. St. Martin, 1.
Siemens frères, ingénieurs électriciens, rue Picot, 8, et rue de la Pompe, 179 et 181.
Société anonyme des câbles électriques, boul. Haussmann, 33.
Solignac et Cie., mécanique de précision applèquée aux sciences et à l'industrie, rue St. Maur, 208.
Société indienne de l'électricité, rue Taitbout, 29.
Société Lyonnaise de Constructions Mecaniques et de Lumière Electrique, rue de Grammont, 17 et 19.
Société des machines Magnéto-Electriques—Gramme, rue Drouot, 15.
Société nouvelle de l'embrayage par l'électricité, rue de Provence, 60.
Société aniverselle d'électricité Tommasi, rue de Provence, 11.
Saisse, F., rue des Grands-Augustins, 23.
Trouvé, G., ingénieur constructeur d'apparei électriques, rue Vivienne, 14.
Vian, G., appareils pour les antage des mines par l'électricité, rue de Château dun, 53.
Vidie, Jules et fils, verrerie et cristallerie de Quatre-Chemiens, route de Flandre, 48, à Pautin (Seine).
Vinay, E., télégraphie électrique, rue Vaueau, 38.
Voisin, A., rue St. Fargeau, 41.
Wandenberg, H., rue des Trois-Bornes, 39.

Electricité Médicale.

E.—Medical Electricians.
G.—Electrotherapie.

Arnould, E., rue d'Enghien, 37.
Barda, B., docteur, rue Blanche, 49.
Biloret et Mora, boul. Richard-Lenoir, 93 et 95.
Boudet de Pâris, docteur, rue d'Isly, 4.
Breguet, quai de l'Horloge, 39.
Brewer frères, rue St. André-des-Arts, 43.
Bunon, rue Vieille du Temple, 27.
Chardin, Ch., rue du Châteaudun, 11.
Combettes, L. de, rue de Bondy, 92.
Desruelles, L. et Bourdoncle J., avenue Perrier, 8, bis.
Dubos, C., avenue de la Motte-Picquet, 41.
Duerotet, E. et Cie., rue des Feuillantines, 75.
Encausse et Canesie, rue Rochechouart, 57.
Feuquières, J., rue de Sèvres, 89.
Fontanié, J. J., rue de Berey, 221 et 207.
Gaiffe, L. A., rue St. André-des-Arts, 40.
Guérin, E., rue Montmorency, 5.
Le Brun, J. H., rue Pastourelle, 32 et 34.
Maugenot, rue d'Ulm, 48.
Planté, G., rue de Tournelles, 56.
Pulvermacher, J. L., rue St. Martin, 239.
Trouvé, G., rue Vivienne, 14.
Vert, C. X., passage Bouchardy, 20.
Vigouroux, R. et Andriocau, G., rue Campagne-Première, 5.

Electro-Chimie.

E.—Electro-Chemistry.
G.—

Billaudot, rue de la Sorbonne, 22.
Biloret et Mora, boul. Richard-Lenoir, 93 et 95.
Boudreaux, L. et fils, rue Monsieur-le-Prince, 27.
Brequet, quai de l'Horloge, 39.
Christofle et Cie., rue de Bondy, 56.
Cottens, père et fils, rue Mouffetard, 52.
Courtot, rue Caumartin, 75.
Dalifol, A. et Cie., quai Jemmapes, 172.
Delagarde, P., rue Vieille du Temple, 24.
Delaurier, E., rue Daguerre, 77.
Drault, boul. Richard-Lenoir, 102.
Feuquiéres, J., rue de Sèvres, 89.
Folie, jeune, rue St. Maur, 204.
Frenais, A., boul. Richard-Lenoir, 77.
Gaiffe, L. A., rue St. André-des-Arts, 40.
Garnier, H., rue Morère, 15 bis.
Grenet frères, rue du Temple, 114.
Leclère, J. E., rue Bonaparte, 58.
Lionnet, C., rue Debellayme, 5.
Mallié, G., et Gérard, boul. Richard-Lenoir, 136.
Mantelet, H., et Joly, H., rue de l'Abbé Grégoire, 15.
Ménagé, J., rue Gambey, 22.
Méritens, de, rue Boursault, 44.
Mignon et Rouart, boul. Voltaire, 137.
Moncomble, E., rue Vivienne, 9.
Pérille, J., avenue de Clichy, 98.
Renaudot et Magneny, faub. St. Denis, 87.

Digitized by Google

Electro-Chimie.—*continué.*

Rose, V., boul. des Capucines, 37.
Sautter, Lemonnier et Cie., avenue de Suffren, 26.
Siemens frères, rue Picot, 8.
Société anonyme des hauts fournaux et fonderies du Val d'Osne, boul. Voltaire, 58.
Société Gramme, rue Drouot, 15.
Société Lyonnaise de constructions mécaniques et de lumière électrique, rue Grammont, 19.
Société des Usines Electro—métallurgique d'Auteuil, avenue de Versailles, 52.
Stoesser, A., boul. St. Germain, 122.
Taverdon, A. S., rue de l'Arbalète, 36.
Weil, F., rue des Petites-Ecuries, 13.

Electro-Metallurgie.

E.—Electro-Metallurgy.
G.—

Christofle et Cie., rue de Bondy, 56.
Compagnie Parisienne d'Eclairage par l'Electricité, rue Dufrenoy, 25.
Folie, C., rue St. Maur, 204.
Folie et Denamur, quai Jemmapes, 82.
Oudry, L., avenue de Versailles, 52.

Fils D'Acier.

E.—Steel Wire.
G.—Stahl-Draht.

Daulton, J., rue des Vinaigriers, 37 et 38.
Felten et Guilleaume, representés à Paris par Jacquet et Cassou, rue des Bourdonnais, 30.
Forges, Fonderies et Acieries Nationales, rue de Javel, 35.
Houghton, W. D., rue de Marseille, 8.
Royston, J., Son et Cie. (G. Duvoisin, réprésentant), rue de Lanery, 17.
Smith, W. et Son (E. Muller, réprésentant), rue de Bondy, 66.
Société anonyme des aciéries et forges de Firminy, boul. Voltaire, 36.
Société anonyme des forges, et aciérie de St Hippolyte, faub. Poissonnière, 8.

Fils de Fer.

E.—Iron Wire.
G.—Eiserner-Draht.

Aubert et Marquèset, rue des Vinaigriers, 43.
Briançon (succ. de Denis Gueudet), rue St. Denis, 205.
Cercelet, faub. St. Martin, 188.
Crochet, P. et Cie. (succ. de Lenfant), rue de Montreuil, 48.
Dallemagne, Ch. (succ. de J. Lecocq), rue Grange-aux-Belles, 59.
Felten et Guilleaume (Jacquet et Cassou, réprésentants), rue des Bourdonnais, 30.
Hitier, J., boul. Ménilmontant, 101.
Petitjean, P., et Belpêche, rue des Vinaigriers, 29.
Rougier, A., rue Chapon, 25.
Royston, J., Son et Cie. (G. Duvoisin, réprésentant) rue de Lancry, 17.
Société anonyme des hauts fournaux fonderies et forges de Franche-Comtè, avenue Daumesnil, 116 et 118.
Société anonyme des forges et aciéries de St. Hippolyte, faub. Poissonnière, 8.

Fils de Fer—*continué.*

Société métallurgique de Gorey (G. Martin, réprésentant), rue des Francs-Bourgeois, 34.
Société métallurgique de Périgord, rue Taitbout, 80.
Verschave, E., rue Pavée-Marais, 17, bis.

Fils Electriques.

E.—Electric Wire & Cable Manufacturers.
G.—Electrischer Draht.

Barbier, E. F., rue Fromentin, 9.
Beaufils, M. F., boul. St. André, 4.
Biloret et Mora, boul. Richard-Lenoir, 93.
Boileau père, rue de Sèvres, 11.
Boivin, A., rue de l'Abbaye, 16.
Bonis, Mme., fournisseur de ministères, rue Montmartre, 18.
Borrel, A. P., (succ. de J. Wagner), rue des Petits-Champs, 47.
Breguet, quai de l'Horloge, 39.
Charlot et Cie., rue St. Ambrosie, 25.
Chouvin et Marin-Darbel, rue de Banquier, 25,
Collin, A. F., rue Montmartre, 118.
Cie anomyne des forges de Châtillon et Commentry, rue Charras, 4.
Deleuil, J. A., rue de Fourneaux, 42.
Dopfeld, J. N., rue des Tournelles, 52.
Douce et Cie., rue de Rivoli, 116.
Fontenelles, V. boul. Haussmann, 38.
Frion et Thierré, rue du Roi-de-Sicile, 50.
Hardy, (Hayet et Lignerreux succ.), avenue La Motte-Piquet, 6.
Hubin, F., rue de Turenne, 14.
Hunebelle, J., rue de Solférino, 2.
India Rubber, Gutta Percha & Telegraph Works Co., Limited, boul. Sébastopol, 97.
Jarriant, rue Pierre-Charron, 58.
Jarriant, jeune, rue Pelidore, 10.
Lagarde, J., rue de Sevres, 15.
Laveissière, J. J. et fils, rue de la Verrerie, 58.
Legay, rue Langier, 42.
Létrange, L. et Cie., rue des Vieilles-Haudriettes,
Lichtenfelder, G., avenue de la Grand-Armée, 45.
Mangenot, rue d'Ulm, 48.
Ménier, rue du Théâtre, 7.
Mouchel, J. O., rue Commines, 10.
Mors, L., (succ. de P. Prudhomme), rue St. Martin, 4. bis.
Oeschger, Mesdach et Cie., rue St. Paul, 28.
Papin, boul. Montparnasse, 51.
Perin-Grados, boul. Richard-Lenoir, 106.
Preisch, P., boul. Richard-Lenoir, 82.
Rattier et Cie., rue d'Aboukir, 4.
Schneider et Cie., rue de Provence, 56.
Société anonyme des hauts-fornaux, fonderies et forges de Franche-Comté, avenue Daumesnil, 116 à 118.
Société anonyme de câbles électriques, boul. Haussmann, 33.
Société anonyme "Le Nickel," rue de la Chaussée-d'Antin, 38.
Société parisienne de fonderie et laminage, rue du Chemin-Vert, 11.
Taverdon, A. L., rue de l'Arbalète, 36.

Digitized by Google

Galvanoplastie.

E.—Electrotypers.
G.—Galvanoplastie.

Allain frères, (F. Allain succ.), rue du Temple, 175.
Beaufours, rue Saint-Denis, 255.
Bertrand, A., rue des Archives, 3.
Blenner, H., rue Feydeau, 3.
Bloch, I. et Rosenwald, rue Pastourelle, 24.
Blot, Ch., rue Bleue, 7.
Boist, rue Ste-Anne, 49.
Boudreaux fils, rue Monsieur-le Prince, 27.
Boulenger, B., rue du Vertbois, 4.
Bremond, rue de Gravilliers, 24.
Cailard, A., Bayard et Cie., rue Grange-aux-Belles, 37.
Calibre, rue Réaumier, 46.
Caux, E., rue Debelleyme, 3.
Cellière, L., rue de la Sorbonne, 20.
Christofle et Cie., rue de Bondy, 56.
Cie. Parisienne d'Eclairage, par l'Electricité, rue Dufrenoy, 25.
Croizon, passage de la Reuss, 5.
Delaunay, rue St. Gilles, 12.
Ferry, A., rue Suger, 13.
Feuquières, J., rue de Sèvres, 89.
Folie, C., rue St. Maur, 204.
Folie et Denamur, quai Jemmapes, 82.
Fouielot, rue St. Sauveur, 11.
Gaiffe, A., rue St. Andre-de-Arts, 40.
Hadin, R., rue St. Claude-Marais, 5.
Hugedé, (C. Lebœuf succ.), b. Bonne Nouvelle, 40.
Jaquard, rue Mazarine, 48.
Lecoq, J., rue Piat-Belleville, 53.
Le Maire et Cie., boul. des Italiens, 33.
Lionnet, rue Debellayme, 5.
Mantelet et Joly, rue de l'Abbé-Grégorie, 15.
Marin, rue Monsieur-le-Prince, 51.
Massonet, Ch. et Cie., faub. St. Denis, 64.
Michel, V., rue Duguay-Trouin, 3.
Oudry, L., Usines: avenue de Versailles, 52; rue Félicien-David, 30 et 31.
Pailloux, boul. du Temple, 36 et 42.
Pallet, rue Lacharrière, 21.
Pape, rue d'Angoulême du Temple, 72.
Rousset, J., rue Visconti, 13.
Savary et Sénac, rue Suger, 22, et rue d'Eperon, 3.
Stœsser, A., boul. St. Germain, 122.
Weil, F., rue des Petites-Ecuries, 13.

Gutta Percha.

E.—Gutta Percha Manufacturers.
G.—Gutta Percha—Fabr.

Bageau, H., rue Bichat, 29.
Boucley, P., et Cie., rue N. D. Nazareth, 12 usines, rue des Entrepreneurs, 43, Grenelle.
De Courdimanche, A., et Cie., rue d'Aboukir, 2.
Fischer, A., et Cie., rue de la Verrerie, 43.
Gérard (Vve.), quai Jemmapes, 108.
Guibal, C., rue Vivienne, 40; succursale, boul., Sebastopol, 129.
India Rubber, Gutta Percha & Telegraph Works Co. Limited, boul. Sebastpool,, 97.

Gutta Percha—*continué.*

Ledoux, G., et Bar, boul. Sebastopol, 46.
Lerchenthal, H., rue Montmorency, 16.
Mager, A., rue d'Aboukir, 11.
Menier, rue du Théâtre, 7, Grenelle.
Rattier et Cie., rue d'Aboukir, 4.

Horlogerie Electrique.

E.—Electrical Clocks.
G.—Electrische Uhren.

Wagner J. (Borrel succ.), rue de Petits, Champs, 47.
Roosevelt, V., et Cie., rue le Peletier, 23.

Instruments pour la Physique et la Chimie.

E.—Scientific Instruments.
G.—Wissenschaftliche Instrumente.

Brewer frères, rue St. André-des-Arts, 43.
Combettes, L. de, rue de Bondy, 92.
Darsonville, H., rue Gay-Lussac, 5.
Deffez, L., rue St. Séverin, 34.
Ducret, Et. E., rue Claude-Bernard, 75.
Fontaine, A., rue Monsieur le-Prince, 18.
Girardin, H., rue des Grandes-degrès.
Leblanc, J., rue Boutebrie, 14.
Lelièvre, A., rue Coutures-St.-Gervais, 6.
Lenczewski, L., et Cie., rue de la Montagne St. Génevieve, 25.
Mallard, A., rue des Archives, 22.
Molteni, rue du Château d'Eau, 44.
Noé, Ch., rue Laromiguière, 9.
Wiesnegg, rue Gay-Lussac, 64.

Instruments de Précision.

E.—Scientific Measuring Instruments.
G.—Wissenschaftliche Mess-Instrumente.

Andriveau, G., rue Campagne-Première, 5.
Casse, A., rue Thorigny, 18 et 20.
Charles (Lasselaumes succ.), rue des Rosiers, 42.
Croissant, place Denfert-Rochereau, 12.
Delenil, rue des Fourneaux, 42.
Démichel, A., Pavée-Marais, 24.
L'Electricité (A. de Méritens), rue Boursault, 44.
Gaiffe, A., rue St. André-des-Arts, 40.
Hurlimann, A., passage Dauphine.
Jenkens, C., rue du Chemin-Vert, 41.
Lenczewski, L., rue de la Montagne-St.-Géneviève, 25.
Le Roy, Ch., rue du Maine, 3.
Renaut, P., et. Cie., avenue Parmentier, 122.
Ruhmkorff, Charpentier J. (succ.), rue Champollion, 15.
Royer, boul. St. Germain, 130 à 132.
Sire, rue St. Marguerite-St.-Antoine, 33.
Verdin, Ch., rue Gît-le-Coeur, 11.

Digitized by Google

Journaux, Revues et Bulletins Scientifiques.

E.—Scientific Publications.
G.—Wissenschaftliche Ausgaben.

Annales Télégraphiques, quai des Grands-Augustins, 49.
Bulletin de la Société d'Encouragement pour l'Industrie Nationale, rue de Rennes, 44.
Catalogue des brevets d'invention, rue d'Eperon, 5.
Chronique Industrielle, rue des Halles, 15.
Electricien (l'), boul. St. Germain, 120.
Electricité (l'), rue Croissant, 16.
Lumière Electrique (la), rue Vivienne, 51.
Nature (la), boul. St. Germain, 120.
Revue Industrielle, rue Drouot, 15.
Revue des postes et télégraphes, rue La Chaise, 8.

Laminoirs.

E.—Rolling Mills and Rolled Metal Manufacturers.
G.—Waltzwerke.

BOOTH, J. & CO., Sheepcote-st., Birmingham.

Libraires et Editeurs.

E.—Booksellers and Publishers.
G.—Buchhändler.

Armengaud, aîné, rue St. Sébastien, 45.
Baudry, J., rue St. Pères, 15.
Gauthier-Villars, quai des Grands-Augustins, 35.
Hachette et Cie., boul. St. Germain, 79.
Lacroix, E., rue des Saints-Pères, 54.
Masson, G., boul. St. Germain, 120.

Lumière Electrique.

E.—Electric Light.
G.—Electrisches Licht.

Arnould, E., rue d'Enghien, 77.
Avoiron et Clement, boul. Voltaire, 56.
Baillehache, E. de, rue Ampère, 54.
Ballat, rue St. Fargeau, 3.
Bardidienne, F., faub. Poissonnière, 30.
Barcellos, O. de, boul. Richard-Lenoir, 117.
Baudet, Cloris, rue St. Victor, 90.
Beau et Bertrand-Taillet, rue St. Denis, 226.
Bernard, J., rue Larrey, 1.
Biloret et Mora, boul. Richard-Lenoir, 93.
Blouzon, E., rue Notre-Dame-de-Nazareth, 30.
Bourdin, C., avenue de la République, 13.
Breguet, quai de l'Horloge, 39.
Cance, A., rue Sedaine, 28.
Carré, E., rue de l'Estrapade, 19, et rue des Irlandais, 4.
Carré, F., rue de Reuilly, 48.
Chertemps, A., passage St. Sebastien, 11 bis.
Clémançon, rue Lamartine, 23.
Clémandot, L., rue Brochant, 18.
Clerc, L., avenue des Ternes, 86.
Cie. des chemins de fer de Paris à Lyon et à la Méditerranée, rue St. Lazare, 88.
Cie. des chemins de fer du nord, rue de Dunkerque, 18.
Cie. Parisienne d'éclairage par l'électricite, rue Dufrenoy, 25.
Courtot, C., rue Caumartin, 75.
Dandigny, place de la Chapelle, 16.
Dehérain, P.P., rue d'Argenson, 1.

Lumière Electrique—*continué.*

Delaporte, G., rue des Bourdonnais, 33.
Delaurier, E., rue Daguerre, 77.
Delaye, V., rue d'Armaillé, 10.
Desruelles et Bourdoncle, avenue Percier, 8 bis.
Douhet, le Comte de, avenue Marceau, 68.
Dubosc, J. et A., rue d'Odéon, 21.
Ducommun, boul. de Magenta, 18.
Ducretet, E., rue Claude-Bernard, 75.
Edison, avenue de l'Opéra, 33.
Engel, A., rue de Seine, 72.
Gagneau et Cie., rue Lafayette, 115.
Gaulard, L., rue Noillet, 65.
Geoffroy, H., rue des Rigoles, 71, et rue de l'Ermitage, 50.
Gérard, A., passage Cottin, 8.
Géraud, rue de Paris, 19, Clichy.
Goderel, E., avenue d'Eylau, 172.
Guichard, P., rue Lafayette, 221.
Hurtu et Hautin, rue St. Maur, 54.
Jarriant, rue Pierre-Charron, 25.
Jarriant jeune, rue Bélidor, 10.
Laurent, rue d'Odéon, 21.
Lepaute fils, rue Lafayette, C.
Lenczewski, L., rue Montagne-Ste.-Geneviève, 25.
L'Hôte, A., rue Margfoy, 7.
Liebert, A., rue de Londres, 6.
Michaels, avenue de l'Opéra, 45.
Mignon et Rouart, boul. Voltaire, 137.
Mildé, rue Monçeau, 3.
Molteni, rue du Château-d'Eau, 44.
Mors, rue St. Martin, 4 bis.
Napoli, D., rue de faub. Poissonnière, 98.
Paris, E., Bourget (Seine).
Petit, P., place Cadet, 27, 29 et 31.
Postel-Vinay, rue Vaneau, 38.
Puvilland frères, rue Oudinot, 23.
Rageot, L., rue N. D. de-Nazareth.
Ranvier, J., rue de Turenne, 116.
Regnard, rue Charlot, 28.
Reynier, E., rue Bénouville, 3.
Sautter, Lemonnier et Cie., avenue de Saffren, 26.
Serrin, V., boul. St Martin.
Siemens frères, rue Picot, 8.
Société anonyme des hauts-fournaux, et fonderies du val d'Osne, boul. Voltaire, 58.
Société d'éclairage electrique, rue Lecourbe, 250.
Société Lyonnaise de constructions mécaniques et de lumière electrique, rue de Grammont, 19.
Société des machines magnéto électrique Gramme, rue Drouot, 15.
Société générale d'electricité, avenue de Villiers, 61.
Société Gramme, rue Drouot, 15.
Société "la force et la lumiére" avenue de l'Opera, 5.
Société Parisienne de fonderie et laminage, rue de Chemin-vert, 11.
Société universelle d'electricité Tommasi, rue de Provence, 11.
Solignac et Cie., rue St. Maur, 208.
Suisse, F., rue des Grands-Augustins.
Susse frères, place de la Bourse, 31.
Thiers, R., rue des Feuillantines, 91.
Trouillet, A., boul. Sebastopol, 112.

Digitized by Google

Machines Magnéto-Electriques et Dynamo-Electriques.

E.—Dynamo and Magneto Electric Machines.
G.—Dynamo-Maschinen.

Baudet, Cloris, rue St. Victor, 90.
Bigeon, rue de la Tombe-Issoire, 73.
Biloret et Mora, boul. Richard-Lenoir, 93 et 95.
Bourdin C., avenue de la République, 13.
Breguet, quai de l'Horloge, 39.
Cance, A., rue Sedaine, 28.
Carre, F., rue de Reuilly, 48.
Clerc, avenue des Ternes, 86.
Cie. Parisienne d'éclairage par l'électricité, rue Dufrénoy, 25.
Delaurier, E., rue Daguerre, 77.
Dubos, C., avenue de la Motte-Piquet, 41.
Gaiffe, L. A., rue St. André-des-Arts, 40.
Gérard, A., passage Cottin, 8.
Gire, E., rue de la Gaîté, 4.
Hardy (Hayet et Lignereux succ.), avenue de la Motte-Piquet, 6.
Hultz, Alph., rue Danville, 18.
Meritens, de, rue Boursault, 44.
Mignon et Rouart, boul. Voltaire, 137.
Radiguet et fils, boul. des Filles-du-Calvaire, 15.
Sautter, Lemonnier et Cie., avenue de Suffren, 26.
Siemens frères, rue Picot, 8.
Société Gramme, rue Drouot, 15.
Société Lyonnaise de constructions, mécaniques et de lumière électrique, rue de Grammont, 19.
Trouvé, G., rue Vivienne, 14.

Manganèse.

E.—Manganese.
G.—Braunstein.

Billault et Billaudot, rue de la Sorbonne, 22.
Cie. des mines de manganèse de Giessen, rue d'Alibert, 10.
Delort, E., et H. Roucolle, rue du Marché des Blancs-Manteaux, 2.
Hubner, A., rue Béranger, 3.
Laurent, H., rue des Rosiers, 3 ter.
Monod et Voisin, rue des Ecouffes, 25.
Rambaud, L., rue Matignon, 34.

Mécaniciens.

E.—Engineers—Mechanical.
G.—Ingenieure—Maschinenbau.

Albaret, passage du Désir, 2 et 4. Ataliers de construction à Rantigny-Liancourt.
Artigo, D. et Cie., Société de construction mécanique de Grenelle, rue du Théâtre, 66.
Ducommun, à Mulhouse (Alsace), dépôt à Paris, boul. Magenta, 18.
Cail, C., et Cie., quai de Grenelle, 15.
Carpentier, J. (ataliers Ruhmkorff), rue Champollion, 15, et rue Delambre, 20.
Chaudré, boul. de Vaugirard, 79.
Chertemps, A., passage St. Sébastien, 11 bis.

Mecaniciens—*continué.*

Chouanard, J., rue St. Denis, 3.
Collin, rue Montmartre, 118.
Cie. de Fives-Lille, rue Caumartin, 64.
Cie. française des moteurs à gaz, avenue de l'Opéra, 15.
Cie. Parisienne d'eclairage par l'electricité, rue Dufrenoy, 25.
Corpet, L., avenue Philippe-Auguste, 117.
Crespin, avenue Parmentier, 23.
Deleuil, rue des Fourneaux, 42.
Deschiens, E., boul. St. Michel, 123.
Digeon, J., rue de Lancry, 56. Magasins et ataliers, rue Fontaine-au-Roi, 41.
Ducretet, E., rue Claude-Bernard, 75.
Dumoulin-Froment (succ. de Froment, Gve.), rue Notre-Dame-des-Champs, 85.
Durenne, à Courbevoie, près Paris.
Electricité, L' (A. de Meritens), rue Boursault, 44.
Farcot, E. D., faub. St. Martin, 233.
Farcot, Joseph, avenue de la Gare, 13.
Félix, C., rue St. Lazare, 28.
Gérard, A., passage Cottin, 8.
Goodwin, Ch. R., quai Jemmapes, 166.
Heilmann-Ducommun et Steinlen, à Mulhouse (Alsace), voir Ducommun.
Henry, Lepaute, rue Lafayette, 6. Ataliers, rue Vaugirard, 139.
Hermann-Laschapelle, J. (J. Boulet et Cie., succ.), rue du faub. Poissonnière, 144.
Jaeggé, Ch. et Gérard, avenue d'Italie, 81.
Leconteux, H. et Garnier, rue Oberkampf, 74.
Mignon et Rouart, boul. Voltaire, 137.
Monduit et Béchet, bureaux et ataliers, rue de Chazelles, 25. Magasin d'exposition, rue Auber, 4.
Olry et Granddemange, rue St. Maur-Popincourt, 83.
Oudry, L. et Cie., avenue de Versailles, 52.
Parent, G., rue Debelleyme, 19.
Piat, A., rue St. Maur-Popincourt, 85, 87 et 94.
Pihet, A. E., rue Neuve-Popincourt, 8.
Pilter, Th., rue d'Alibert, 24.
Plaisant, F., rue des Quatre-Fils, 5.
Poillon, L., boul. Montparnasse, 158.
Polino, A., et L. Cailor, rue St. Maur, 26.
Powel, T., de Rouen (rèprésenté par M. Paul Ducastel), rue Louis-le-Grand, 9.
Rodiguet et Fils, boul. des Filles-du-Calvaire, 15.
Rattier et Cie., rue d'Aboukir, 4.
Sainte, A., rue Taylor, 22.
Sautter, Lemonnier, et Cie., avenue de Suffren, 26.
Schneider et Cie., rue de Provence, 56.
Société Lyonnaise de constructions, mécaniques et de lumière électrique, avenue de Suffren, 40.
Tavernier (Vve.), faub. St. Martin, 252.
Thirion, A., rue Vaugirard, 147.
Thomasset, Vollot et Cie., boul. Vaugirard, 8.
Trouillet, A., boul. Sébastopol, 42.
Varrall, Elwell et Middleton, avenue Trudaine, 1.
Wagner, oncle (Collin succ.), rue Montmartre, 188.
Wagner, J., neveu, rue des Petits-Champs, 47.
Wolff, Charles, boul. Richard-Lenoir, 15.

Digitized by Google

Mercure.

E.—Mercury.
G.—Mercur.

Billault et Billaudot, rue de la Sorbonne, 22.
Gatine, L., rue des Rosiers, 23.
Lavergne, rue Richard-Lenoir, 38.
Normand, Ch., rue Châteaudun, 51.
Plasault, de, rue Chapon, 5.

Métaux.

E.—Metals Merchants.
G.—Metall—Händler.

Accault, A., boul. Diderot, 78.
Alaine, maillechort, rue du Chemin-Vert, 46.
Aluminium, société anonyme de l', boul. Poissonnière, 21.
Andrieux, J., rue de Lappe, 21.
Arizoli, P., rue Pastourelle, 38.
Astorgne, P., jeune, zinc, rue des Taillandiers, 13.
Auger, (A. Klein succ.), rue Ménilmontant, 6.
Balagairie Cuoillier et Chocorne, cuivres et maillechorts, faub. du Temple, 43 et 45.
Béjot et Cie., rue de Turenne, 18.
Bénédic, métaux bruts et laminés, rue St. Gilles, 12.
Benoist, J., cuivre, zinc, plomb, avenue d'Italie, 13.
Berger, C., rue d'Angoulême, 52.
Berger, Ph et fils, avenue Parmentier, 102.
Berger, Spence et Cie., rue d'Hanôvre, 7.
Bergeron, rue de la Roquette, 118 bis.
Bidault et Gruel, zinc, rue Lakanal, 17, Paris-Grenelle.
Bony, A., avenue du Bel-Air-du-Trône, 12.
Borderie, Ch., rue de la Roquette, 88.
Borville-Séréville, G. de, cuivre rouge, rue de Crussol, 16.
Borzecki, A., métaux fine, nickel, bismuth, cuivre, jaune, maillechort, &c., boul. Magenta, 46.
Boulenger, A., nickel, maillechort, cuivre, rue du Vertbois, 4.
Bourgeois, (succ. de E. Leduc) rue St. Martin, 210
Baisson, O., quai Valmy, 37.
Cailar, A., et fils, rue Keller, 4.
Cailar, J. M., fonderie, laminage et tréfilage de cuivre, fit rosette, chrysocale, et maillechort, avenue Parmentier, 4.
Cailar, A., boul. Richard-Lenoir, 64.
Cailar, A., Bayard et Cie., rue Grange-aux-Belles, 37.
Canuet, A., rue Folie-Méricourt, 16,
Caplen, E., rue Lafayette, 69.
Carnaud, J. J., avenue de la République, 16.
Cercelet, faub. St. Martin, 188.
Chapal, boul. Beaumarchais, 3.
Chapuis, H., rue Grenéta, 36.
Chanvel, E., cuivres, laminés, rue St. Elizabeth, 1.
Cheylus, P., planches cuivre et jaune, étain et plomb, faub. St. Antoine, 21, et rue de la Roquette, 2.
Christofle et Cie., nickel et alléager de nickel, rue de Bondy, 56.
Cie. des forges d'Audincourt, rue Amelot, 64.
Cie. royale asturienne des mines, rue de Malte, 50, ter, M. Félix Boisot.
Debladis, J., passage des Taillandiers, 9.

Metaux—*continué.*

Delmas, L., et Fortin, cuivres rouge et jaune, zinc, éjains, plombs, faub. St. Antoine, 45.
Demalle et Cie., rue du Mont-Thabor, 24.
Denis, Eug., fils d'acier, rue Amelot, 90.
Denouvilliers, L., et fils, rue Lafayette, 174.
Desclercs, maillechort extra-blanc, rue des Marais, 66, boul. Magenta.
Desmoutis, quennessen et Le Brun, rue Montmartre, 56.
Dopfeld, A., tréfilerie de laiton et fil rosette, haute conductibilité, rue des Tournelles, 52.
Dronier, P. et Cie., fils en bronze malleable, rue d'Argentouil, 19.
Dunon, A., plomb laminé et tuyaux, cuivre, étain, faub. St. Martin, 33.
Durenne, A., rue de la Verrerie, 30.
Franck, zincs laminés, plombs, cuivres, avenue de Versailles, 6.
Gaspard et Belle, cuivre, nickel, maillechort en bandes fils et tubes, rue Saintongo, 62.
Gilbert, zinc, plomb, étain, rue Ste-Croix-de-la-Bretonnerie, 20.
Gombault et Cie., maillechort, rue des Marais, 66.
Griset et Schmidt, cuivre rouge, cuivre jaune en planches, rue Oberkampf, 123.
Hemerdinger, E., fonderie, laminage et tréfilerie de cuivre, faub. du Temple, 16.
Héricourt frères, rue du Temple, 197.
Hubin, F., cuivre laminé, zinc laminé et plomb laminé, en tuyaux et en fils cuivre jaune laminé en fils, rue de Turenne, 14.
Hubner, A., rue Beranger, 3.
Lange, F. A., dépôt de maillechort Argentin en planches, bandes et fils, boul. Voltaire, 1.
Laurent, H., antimonie, régule, bismuth, cadmium, rue des Rosiers, 3 ter.
Laveissière, J. J., plombs laminés, cuivres rouges laminés, fils en cuivre rouge zinc, étain, régule, rue de la Verrerie, 58.
Lemarechal frères, cuivre, rue Chapon, 3.
Létrange, L. et Cie, plomb, zinc, cuivre, étain, et rue des Haudriettes, 1.
Massière, E., rue St. Martin, 220.
Motteau, trefilerie de fer et de cuivre, rue Rambuteau, 20.
Mouchel-Olivier, J., trefilerie, rue Communes, 10.
Muller, P. et C. Roux, maillechort, nickel et cobalt, rue Amelot, 138.
Nathan-Cohen, G., cuivre jaune et rouge, rue Amelot, 40; et rue St. Sabins, 51.
Oeschger, Mesdach et Cie, zinc et cuivre laminé, rue St. Paul, 28.
Pilliard, L., cuivres, zincs, maillechort, rue St. Martin, 106.
Piolat, B., cuivre et plomb brut et laminé, rue Portefoin, 14.
Pujol, C., rue Chapon, 16.
Rheims, I., cuivres lamainés jaune et rouge, nickel et cobalt, rue Sévigné, 25.
Saillofest, J., rue Sévigné, 13.
Secretan, E., rue Elzévir, 12.
Société anonyme des mines et fonderies, de Pontgibaud, rue de Chateaudun, 15; Depôt, quai Valmy, 37.

Digitized by Google

Métaux—*continué.*

Société anonyme des zincs français, rue des Petits Champs, 76; Usines: rue Emériau, 92; et Rouelle, 18, Paris-Grenelle.
Société industrielle et commerciale des métaux, rue Elzévir, 12.
Société parisienne anonyme, rue du Chemin-Vert, 11.
Société de la Vieille Montagne, rue Richer, 19.
Ulmann et Fribourg, rue Vertbois, 4.

Minium.

E.—Red Lead.
G.—

Achard, J., boul. du Temple, 50, et boul. Voltaire, 4
Bonneville et Cie., boul. Magenta, 46; usines, route du Landy à St. Denis, 4.
Darche (Vve.), ecluses, St. Martin, 27.
Henry, R., boul. de la Villette, 117.
Laurent, H., rue des Rosiers, 3 ter.
Leplat, O., rue de la Chapelle, 46.
Meynier, J. A., rue Lafayette, 85.
Société anonyme des mines et fonderies de Pontgibaud, rue Châteaudun, 15.
Villemot, A., rue Amelot 43 et 52.

Moteurs à Gaz.

E.—Gas Motors.
G.—Gas-Motoren.

Compagnie auxiliaire pour l'eclairage chauffage et force motrice par le gaz, boul Magenta, 38.
Compagnie française de moteurs à gaz, société anonyme, avenue de l'Opera, 15.
Seraine, rue Campagne-Première, 8, bis.

Moteurs Electriques.

E.—Electric Motors.
G.—Electrische-Motoren.

Baudet, Cloris, rue St. Victor, 90.
Bigeon, rue de la Tombe-Issoire, 73.
Biloret et Mora, boul. Richard-Lenoir, 93 et 95.
Bourdin, C., avenue de la République, 13.
Breguet, quai de l'Horloge, 39.
Cance, A., Rue Sedaine, 28.
Chrétien, J., rue de Monceau, 87.
Dandigny, place de la Chapelle, 16.
Delaurier, E., rue Daguerre, 77.
Desruelles, L., et Bourdoncle, avenue Percier, 8 bis.
Dubos, Ch., avenue de la Motte-Piquet, 41.
Ducretet, E., et Cie., rue des Feuillantines, 75,
Dumoulin, Froment, rue Notre-Dame des Champs, 85.
Flogny, E. F. L., rue Lemercier, 81.
Geneste, Herscher, et Cie, rue du Chemin-Vert, 42
Gire, E., rue de la Gaîté, 4.
Guichard, P., rue Lafayette, 221.
Herz, C.
Huetz, Alph., rue Danville, 58.
Hurtu et Hautin, rue St. Maur, 54.
Journaux, J., rue des Cevennes, 56; rue du Bac, 37; et boul. Sébastopol, 84.
Larmanjat, J., rue Chauveau-Legarde, 18.
Meritens, de, rue Boursault, 44.
Michaels, J. P., avenue de l'Opéra, 45.

Moteurs Electriques—*continué.*

Moncomble, E., galerie Vivienne, 9.
Olivier, rue des Filles-du-Calvaire, 10.
Puvilland fréres, rue Oudinot, 23
Regnard, rue Charlot, 28.
Sautter, Lemonnier et Cie., avenue de Saffren, 26.
Siemens fréres, rue Picot, 8.
Société anonyme des câbles electriques, boul. Haussmann, 33.
Société Gramme, rue Drouot, 15.
Société la force et la lumière, avenue de l'Opéra,
Société Lyonnaise de constructions mécaniques et de lumière électrique, rue de Grammont, 19.
Suc, boul. de la Villette, 50.
Taverdon, A. L., rue de l'Arbalète, 36.
Tissandier, G., avenue de l'Opéra, 19.
Trouvé, G., rue Vivienne, 14.

Nickel.

E.—Nickel.
G.—Nickel.

Accault, A., boul. Diderot, 78.
Alaine A., rue du Chemin-Vert, 46.
Bauduin, C. (A. Delaherche succ.), cité Riverin, 7.
Billault et Billaudot, rue de la Sorbonne, 22.
Bondoux, J., rue Vieille-du-Temple, 30.
Borzecki, A., boul. Magenta, 46.
Boulenger, A., rue du Vertbois, 4.
Christofle et Cie., rue du Bondy, 56.
Courty, rue du Temple, 114.
Delair, boul. Richard-Lenoir, 127.
Espinasse, E., rue St. Martin, 213.
Falke, J., et Cie., passages des Petites-Ecuries, 20.
Folie et Denamur, quai Jemmapes, 82.
Folie, C., rue St. Maur, 204.
Gaiffe, A., rue St. André-des-Arts, 40.
Gaspard et Belle, rue Saintonge 62.
Hubner, A., rue Béranger, 3.
Lévy, Martin, et Plainchault, rue Pièrre-Levée, 16.
Mallié et Gérard, boul. Richard-Lenoir, 136.
Mines de Cabalt de l'Aragon, rue Caumartin, 28.
Mongenot, E., et Cie., rue Sedaine, 17.
Muller et Roux, rue Amelot, 138.
"Le Nickel" société, anonyme, rue de la Chaussée d'Antin, 38.
Plazanet, de, rue Chapon, 5.
Rheims, J., rue du Parc-Royal, 16.
Sengel, E., rue Beautreillis, 22.
Société anonyme des mines et fonderies de Pontgibaud, rue Châteaudan, 15.

Nickeleurs et Nickelure.

E.—Nickel Platers.
G.—

André, rue du Pont-au-Choux, 21.
Bauduin, C., cité Riverin, 7.
Beauferey, L., rue Charlot, 31.
Besançon, Ch. (Ducroux succ.), rue Chapon, 10.
Boulenger, A., rue du Vertbois, 4.
Brisbarre, E., cour Trouillot, 14.
Christofle et Cie., rue de Bondy, 56.
Couthier, rue Saintonge, 27.
Dechalotte, quai Jammapes, 88.
Delaherch, A., cité Riverin, 7.

Digitized by Google

Nickeleurs et Nickelure—*continué.*

Ducroux, rue Chapon, 4.
Dufoulon et Regnier, rue Portefoin, 2.
Dumas, rue Gambey, 16.
Folie, C., rue St. Maur, 204.
Folie et Denamur, quai Jemmapes, 82.
Gaiffe, A., rue St. André-des-Arts, 40.
Gérard et Cie., rue Charlot, 62.
Girard, faub. St. Martin, 78.
Grand-Cyr, rue Portefoin, 9.
Hamlin, C., rue des Haudriettes, 5 bis.
Hauck, rue Lafayette, 220.
Hugenot, passage Ménilmontant, 3.
Lagriffoul, rue Charlot, 62.
Lainé, L., rue Chapon, 7.
Landry, rue Pastourelle, 5.
Laveur et Cie., rue de Nesles, 13.
Lecroart, E., rue St. Maur, 60.
Lemire et Degueldre, rue Charlot, 77.
Le Sueur, H., rue des Petites Ecuries, 32.
Maillé, avenue de la Republique, 7.
Maubert, rue Grange-aux-Belles, 35.
Moitre, E., rue de Bondy, 80.
Mongenot, E. et Cie., rue Sedaine, 17.
Ory, A., rue des Vertus, 20.
Pichou, A., rue Notre-Dame-de-Nazareth, 8.
Plazanet, de, rue Chapon, 5.
Poirier, rue de l'Estrapade, 21.
Poulenc et Wittmann (Poulenc frères succ.) rue St. Merri, 7.
Société du familistère, représentée par A. Moret, faub. St Martin, 173.

Paratonnerres.

E.—Lightning Conductors.
G.—Blitzableiter.

Ancelet, Th. boul. Edgar-Quinet, 18.
Argault (E. Cartier succ.) rue Titon, 30.
Beignet, rue Montmartre, 96.
Biloret et Mora, boul. Richard-Lenoir, 93.
Boivin, A., rue de l'Abbaye, 16.
Borrel (succ. de J. Wagner neveu), rue des Petits-Champs, 47.
Cartier, E., rue Titon, 30.
Collin, rue Montmartre, 118.
Deleuil, rue des Fourneaux, 42.
Douce et Cie., rue de Rivoli, 116.
Esquerré-Cabalé, avenue des Champs, Elysées, 28.
Fontenilles, V., boul. Haussmann, 38 et 40, et rue de la Chaussée-d'Antin, 15.
Gignon, E., rue St. Ferdinand-Ternes, 6.
Grados (Perin-Grados succ.) boul. Richard-Lenoir, 106.
Guérin, Ch. rue de Naples, 72.
Jarriant, rue Pierre-Charron, 25.
Magne, Ch., avenue du Trocadéro, 7.
Mildé, Ch., fils, rue de Monceau, 3.
Mors, L., (succ. de P. Prudhomme), rue du Théâtre, 48.
Pelletier, A. L., rue de Rome, 78.
Piéplu, rue de Bréa, 20.
Pierre, F., boul. Malesherbes, 79.
Rochefort, faub. St. Martin, 41.
Verdavainne, E. (Maison niot), rue Mandar, 10.

Phares—Construct. de.

E.—Lighthouse Engineers.
G.—Leuchtthurm Ingeneure.

Barbier et Fenestre, rue Curial-Villette, 82.
Cartier, E., rue Titon, 30.
Cie. Parisienne d'éclairage par l'électricite, rue Dufrenoy, 25.
Delaporte, G., rue des Bourdonnais, 33.
Faucon frères, rue de la Douane, 24, et quai Valmy, 41.
Henry-Lepaute, rue Lafayette, 6, ateliers, rue de Vaugirard, 139.
Phares de l'Empire Ottoman, Administration générale, Collat et Michel, rue Blanche, 32 et 34.
Sautter, Lemonnier et Cie., avenue de Suffren, 26.

Phonographes.

E.—Phonographs.
G.—Phonographen.

Fondain, U., rue Richer, 10 et 12.
Loiseau, A., fils, rue Fontaine-au-Roi.

Piles Electriques.

E.—Electric Batteries.
G.—Electrische Batterien.

Aunay, A d', cité Gaillard, 3,
Ballat, rue St. Fargeau, 3.
Barbier, E., rue Fromentin, 9.
Barbier, M., rue des Quatre-Vents, 6.
Barluet et Cie., rue du faub. Poissonnière, 61.
Burral, Ch., rue Larrey.
Baudet, Cloris, rue St. Victor, 90.
Beaufils, M. F., boul. St. André, 4.
Berrurier, père et fils, rue Cafarelli, 14.
Billault et Billaudot, rue de Sorbonne, 22.
Billoret et Mora, boul. Richard-Lenoir, 93.
Blouzon, E., rue Notre-Dame-de-Nazareth, 30.
Boivin, A., rue de l'Abbaye, 16.
Bourdin, C., avenue de la République, 13.
Breguet, quai de l'Horloge, 39.
Brewer frères, rue St. André-des-Arts, 43.
Carré, F., rue de Reuilly, 48.
Chapuis, F., rue de Lourmel, 17.
Combettes, L. de, rue de Bondy, 92.
Cie. des chemins de fer de Paris à Lyon et à la Méditerranée, rue St. Lazare, 88.
Delaporte, G., rue des Bourdonnais, 33.
Delaurier, E., rue Daguerre, 77.
Desruelles, L., avenue Percier, 8 bis, et rue La Boëtie, 36.
Digney, frères, rue des Poitevins, 6 et 8.
Douce et Cie., rue de Rivoli, 116.
Dubos, avenue de la Motte-Piquet, 41.
Duboscq, J. et A., rue de l'Odéon, 21.
Ducretet, E. et Cie., rue Claude-Bernard, 75.
Engel, A., rue de Seine, 77,
Féraud, V. N., rue d'Alésio, 121.
Frion et Thierré, rue de Roi-de-Sicile, 50.
Gaiffe, L. A., rue St. André-des-Arts, 40.
Gaulard, L., rue Nollet, 65.
Girard, F., rue des Batignolles, 80.
Goderel, avenue d'Eylau, 172.

Digitized by Google

Piles Electriques—*continué.*

Gouamier, (Cornette succ.), rue Michel-le-Comte, 23.
Guérin, Ch., rue de Naples, 72.
Guérin, E., rue Montmorency, 5.
Guérot, rue Daguerre, 57.
Hubin, G., rue de Turenne, 14.
Lallier, (Vve.) et Cie., rue de Buffon, 23.
Laurent, rue l'Odéon, 21.
Leclanché, rue Fromentin, 9.
Létrange, L. et Cie., rue des Vieilles-Handriettes, 1.
L'Hôte, A., rue Markfoy, 7.
Loiseau, E., rue de Seine, 35.
Luizard, L., rue d'Arcole, 21.
Maiche, L., rue Louis-le-Grand, 3.
Mangenot, rue d'Ulm, 44.
Mathien, L. A., rue de Saintonge, 20.
Michaels, J. P., avenue de l'Opera, 45.
Mors, L. (succ. de P. Prudhomme), rue St. Martin, 4, bis.
Noé, C. F., rue Laromiguière, 9.
Pia, J., boul. de Belleville, 44.
Planté, G., rue de Tournelles, 56.
Keynier, E., rue Benouville, 3.
Sainte, A., rue de Château-d'Eau, 25.
Sanison, F., avenue Duquesne, 39.
Serrin, V., boul. St. Martin, 1.
Société "la force et la lumière," avenue du l'Opéra, 5.
Société universelle d'électricité Tommasi, rue de Provence, 11.
Thiers, R., rue des Feuillantines, 91.
Trouvé, G., rue Vivienne, 14.
Warnon, V. J., rue de la Folie-Méricourt, 27.
Weill, M., boul. de Sébastopol, 135.

Platine.

E.—Platinum dealers.
G.—Platinum—Händler.

Chapuis, H., rue Greneta, 36.
Chapuis, P., rue Mandar, 21.
Desmoutis, Quennessen et Le Brun, rue Montmartre, 56.
Eberlin, Ph., rue de Caire, 43.
Godart et Contenau, rue du Bouloi, 7.
Morin, (Vve.), rue Montmartre, 77.
Société Française d'inoxydation et de platinage, rue des Petits-Champs, 76.

Plomb—Mines et Fonderies.

E.—Lead Mines and Works.
G.—Blei Werke und Schmelzerei.

Cie. Française des mines et usines d'Escombréra, rue Taitbout, 37.
Cie. royale Asturienne, rue de Malte, 50 ter.
Sanchez Torres, F., rue Séguier, 3.
Société anonyme des mines et fonderies de Pontgibaud, rue Châteaudun, 15.

Produits Chimiques.

E.—Chemicals.
G.—Chemiker.

Adamski, L., rue Barbette, 2.
Albert et Barthe, rue des Écouffes, 21.
Alvergniat frères, rue de la Sorbonne, 10.
Baczynski, R., rue Barbette, 8.
Bardot, H., passage Duranton, 19 (rue Lecourbe, 274).
Baudet, Cloris, rue St. Victor, 90.
Berrurier père et fils, rue Cafarelli, 14.
Billauet et Billaudot, rue de la Sorbonne, 22.
Camus frères, Nippel et Cie., rue Barbette, 2.
Coblenz frères, passage Chausson, 5 (boul. Magenta, 21).
Couriat, E., rue des Juifs, 16.
Couteux, L., rue des Archives, 6.
Danguis (Tabourier succ.), rue St. Maur, 21.
Deroche (A. Leviell succ.), rue de l'Ancienne-Comédie, 19 et 21.
Dubois-Caplain, H., rue des Entrepreneurs, 34.
Etablissements Malétra (société anonyme), rue de Rivoli, 140.
Fabre, E., rue Blanche, 79.
Faller, E., rue des Blancs-Manteaux, 32.
Gallais, A., boul. de la Villette, 73.
Garnier fils et Cie., rue des Francs-Bourgeois, 56.
Hamelle, H., et A. Fleutelot, quai Jemmapes, 74.
Lacombe, H., rue des Minimes, 5.
Lamoureux et Gendrot, rue Charlemagne, 21.
Lefebvre, E., rue de la Cérisaie, 13.
Leplat, O. (A. Mouret succ.), rue de la Chapelle, 46.
Mallié et Gérard, avenue de la République, 7, et boul. Richard-Lenoir, 136.
Manufactures (société anonyme) des glaces et produits chimiques de St. Gobain, Chauny et Cirey, rue St. Cécile, 9.
Montreuil fréres, Vignat et Cie., rue de Palestrō, 15.
"Le Nickel" (systéme Garnier), rue de la Chaussée d'Antin, 38.
Pressac, J., rue des Francs-Bourgeois-Marrais, 40.
Régnault, R., et Cie., avenue de Paris, 20.
Roseleur, A. (de Plazanet succ.), rue Chapon, 5.
Ruch et fils, rue Sévigné, 29.
Ruelle, H., boul. Beaumarchais, 86.
Société anonyme de fabrication de produits chimiques pour les sciences, etc., rue des Ecoles, 42 et 44.
Société anonyme des produits chimiques établissements Malétra, rue de Rivoli, 140.
Société anonyme de produits chimiques de Comines et d'Asnières, rue Le Peletier, 20.
Société anonyme de produits chimique de St. Denis, bureaux, boul. Haussmann, 35.
Suilliot, H., rue St. Croix-de-la-Bretonnerie, 21.
Tabourier (succ. de Vve. Danguis), rue St. Maur, 21 et 23.
Tencé, H., fils, rue des Boulets, 64.
Usine, St. Luc, rue St. Gilles, 17.
Weil, F., rue des Petites-Ecuries, 13.

Digitized by Google

Sciences (Fabr. d'instruments de).

E.—Scientific Instrument Makers.
G.—Wissenschaftliche Instrumente—Fabr.

Alely A., boul. du Temple, 33 et 35.
Aluminium, société anonyme de l', boul. Poissonnière, 21.
Andriveau, G., rue Campagne-Première, 5.
Association général des ouvriers en instruments d'optique, rue Pierre-Levée, 9.
Balbreck aîné, boul. Montparnasse, 81.
Baraban Dupressoir (Parent succ.), rue St Honoré, 175.
Barbier et Fenestre, rue Curial-Vilette, 82.
Bardon, A., rue de Chabrol, 55.
Baserga, A. fils, quai de l'Horloge, 29.
Benoit, A. et Cie., rue Notre-Dame-de-Nazareth, 10.
Barthélemy, A., rue Dauphine, 16.
Billault et Billaudot, rue de Sorbonne, 22.
Biloret et Mora, boul. Richard-Lenoir, 93 et 95.
Carpentier, J. (ateliers Ruhmkorff), rue Champollion, 15, et rue Delambre, 20.
Carré, F., rue de Reuilly, 48.
Cathelas, F., rue Vieille-du-Temple, 83.
Chevalier, rue d'Aboukir, 48.
Chevalier, le docteur Arthur, Palais-Royal, 158 galerie de Valois.
Collot, A., boul. d'Enfer, 226, et boul. Edgar-Quinet, 8,
Combettes, L. de, rue de Bondy, 92.
Dany et Lepage, faub. St. Martin, 59, et boul de Strasbourg, 30.
Deffez, L., rue St. Séverin, 34.
Defrançois, G., place Dauphine, 24.
Delaporte, G., rue des Bourdonnais, 33.
Deleuil, rue des Fourneaux, 42.
Deroche (A. Levieil succ.), rue de l'Ancienne-Comédie, 19 et 21.
Duboscq, J. et A., rue de l'Odéon, 21.
Ducomet, rue des Petits-Hôtels, 20.
Ducretet, E. et. Cie., rue Claude-Bernard, 75.
Dumoultin-Froment, rue Notre-Dame-des-Champs, 85.
Dutrou, boul. St. Germain, 94.
Feil, rue Lebrun, 30.
Gaiffe, A., rue St. André-des-Arts, 40.
Gauthier et Bondier-Moret, rue des Francs-Bourgeois, 41.
Gautier, P., boul. d'Enfer, 222.
Gottliffe, E., et Th. Simon, rue de Turbigo, 87.
Goubeaux, A., rue de Bellechasse, c.
Goulancourt, boul. du Temple, 17.
Guichard, S., et Cie., rue de Rocroy, 8.
Hempel, O., et Cie., quai des Grands-Augustins, 55.
Henry-Lepaute, rue Lafayette, 6.
Ikelmer, rue des Francs-Bourgeoise, 47.
Kahn et Schumann, rue Lancry, 39.
Laurent, L., rue de l'Odéon, 21.
Loiseau, A., rue Fontaine-au-Roi, 59.
Luizard, L., rue d'Arcole, 21.
Lutz, Ed., boul. St. Germain, 82.
Molteni, rue du Château-d'Eau, 44.
Noé, Ch., rue Laromiguière, 9.

Sciences (Fab. d'instruments de).—*continué*

Parent, G., rue Debelleyme, 19.
Picart, A., rue Mayet, 20.
Plaisant, F., rue des Quatre-Fils, 5.
Rodiquet et fils, boul. des Filles-du-Calvaire, 15.
Reynier, E., rue Benouville, 3.
Sautter, Lemonnier et Cie., avenue de Suffren, 26.
Secretan, place du Pont-Neuf, 13.
Séguy et fils, rue Monsieur-le-Prince, 53.
Serrin, Vor., boul. St. Martin, 1.
Trouvé, G., rue Vivienne, 14.
Vinay, E. (A. Postel-Vinay succ.), rue Vaneau, 38.

Signaux pour Chemins de Fer.

E.—Railway Signals.
G.—Signale für Eisenbahnen.

Aboilard, L. rue de Courcelles, 161.
Achard, A., rue de Provence, 60.
Boivin, A., rue de l'Abbaye, 16.
Borrel, A. P., rue des Petits-Champs, 47.
Breguet, quai de l'Horloge, 39.
Chapart et Seng, impasse Blottière, 3.
Combettes, L. de, rue de Bondy, 92.
Cie. des chemins de fer de Paris à Lyon et à la Méditerranée, rue St. Lazare, 88.
Cie. du chemins des fer de Paris à Orléans, place Walhubert, 1.
Crespin, A., avenue Parmentier, 23.
Digney frères, rue des Poiterins, 6 et 8.
Ducousso frères, rue Vaneau, 82.
Gressier, E., rue de Lyon, 3.
Joly, A., rue du Cherche-Midi, 19.
Lartigue, rue de la Tour, 60.
Leblanc, H., et Loiseau, rue Fontaine-au-Roi, 57.
Mennsier, E., rue Montbauzon, 16, Versailles.
Mildé, Ch., fils, rue de Monceau, 3, Versailles.
Mors, L., (succ. de Prudhomme), rue St. Martin, 4 bis.
Netter, J., et Pilard frères, rue de la Voûte, 62.
Postel-Vinay, A., rue Vaneau, 38.

Sociétés Savantes.

E.—Learned Societies.
G.—

Association amicale des anciens élèves de l'école centrale des arts et manufactures, rue des Coutures St. Gervais, 1.
Société des anciens élèves des écoles nationales d'arts et métiers, rue Vivienne, 36.
Société des anciens élèves de l'école des mines, rue Taitbout, 47.
Société d'encouragement pour l'industrie nationale, rue de Rennes, 44.
Société des ingénieurs civils, cité Rougemont, 10.
Société des ingénieurs télégraphistes d'Angleterre, rue de Naples, 4.

Sonneries et Signaux Electriques.

E.—Electric Bells and Signals.
G.—Electrische Glocken.

Aboilard, L., rue de Courcelles, 161.
Aylmer, J., rue de Naples, 4.

Digitized by Google

Sonneries et Signaux Electr.—*continué.*

Barbier, E., rue Fromentin, 9.
Beignet, rue Montmartre, 96.
Biloret et Mora, boul. Richard-Lenoir, 93.
Boivin, A., rue de l'Abbaye, 16.
Bonis, Mme., rue Montmartre, 18.
Borrel (succ. de Wagner, J. Neveu), rue des Petits-Champs, 47.
Bosisio, A., rue Lafayette, 11.
Bourély, F., boul. de Strasbourg, 38.
Breguet, quai de l'Horloge, 39.
Brewer frères, rue St. André-des-Arts, 43.
Casanova, J., rue Marcadet, 98.
Cazésus, rue Miroménil, 86.
Chardin et Prayer, rue de Châteaudun, 5.
Collin (succ. de B. H. Wagner), rue Montmartre, 118.
Combettes, L. de, rue de Bondy, 92.
Cornette (succ. de Gouamier), rue Michel-le-Comte, 23.
Courtot, C., rue Caumartin, 75.
Delamotte et Boyer, passage Marbœuf, 14, et rue Marbœuf, 34.
Deschiens, E., boul. St. Michel, 123.
Digney frères, rue des Poetevins, 4 et 6.
Douce et Cie., rue de Rivoli, 46.
Ducretet, E., et Cie., rue Claude-Bernard, 75.
Esquerré, Cabalé, avenue des Champs-Elysées, 28
Filliot, J., boul. de Courcelles, 15.
Fontenilles, V., boul. Haussmann, 38, et rue de la Chaussée-d'Antin, 15.
Gaiffe, A., rue St. André-des-Arts, 40.
Garnier, P., rue Taitbout, 6 et 16.
Gautier, E., rue de Varenne, 64.
Geoffroy, H., rue des Rigoles, 71, et rue de l'Ermitage, 50.
Gerteis, E., rue Rochèchouart, 67.
Gruat, rue de la Rocquette, 75.
Guérin, E., rue Montmorency, 5.
Guérin, Ch., rue de Naples, 72.
India Rubber, Gutta Percha & Telegraph Works Co., Limited, boul. de Sébastopol, 97.
Jarriant, rue Pierre-Charron, 25.
Jarriant jeune, rue Bélidor, 10.
Lavaud et Martel, rue Meyerbeer, 5.
Leber, rue Dulong, 29.
Lefebvre, E., rue de la Cérisaie, 13; usine, à Montreuil.
Lenczewski, L. et Cie., rue de la Montagne, St. Geneviève, 25.
Lippert et Petitqueux, rue Bachelet, 21.
Loiseau fils, rue Fontaine-au-Roi, 57.
Magne, Ch., avenue du Trocadéro, 7.
Mildé, Ch., fils, rue de Monceau, 3.
Missonier et Collas, rue Myrrha, 87.
Mors, L (succ. de P. Prudhomme), rue St. Martin, 4 bis.
Pelletier, A. L., rue de Rome, 78.
Pelletier, G., fils, rue Bailly, 5.
Robert, A. (succ. de Bache), rue Rochèchouart, 35.
Saury, E., rue St. Laurent, 6.
Strebet-Dorléans, faub. du Temple, 106.
Taillefesse, A., rue Lafayette, 172.
Walcker, W., rue Rochèchouart, 42, et avenue de l'opera, 38.
Wandenberg, H., rue des Trois-Bornes, 39.

Télégraphie (Appareils et fournitures de)

E.—Telegraph Apparatus.
G.—Telegraphische Apparate.

Arlincourt, L. d', avenue d'Eylau, 157.
Auboin, rue de la Roquette, 21.
Aylmer, J., rue de Naples, 4.
Baillehache, E. de, rue Ampère, 54.
Barbier, E., rue Fromentin, 9.
Barbier, rue des Quatre-Vents, 6.
Barrière, L. et Cie., rue St. Sabin, 22.
Baudot, J. M. E., rue de Vaugirard, 181.
Bigeon, rue de la Tombe-Issoire, 73.
Biloret et Mora, boul. Richard-Lenoir, 93.
Biron, E., rue St. Martin, 237.
Bloch, N., et C. Breger, rue de l' Entrepôt, 17.
Boivin, A., rue de l' Abbaye, 16.
Bonis, Mme., rue Montmartre, 18.
Borrel, A. P., rue des Petits-Champs, 47.
Breguet, boul. Montparnasse, 81.
Breton frères, rue des Ecoles, 52.
Brewer frères (ancienne maison Baudet), rue St. André-des-Arts, 43.
British Telegraph Manufactory, Limited, représenté par J. Aylmer, rue de Naples, 4.
Cacheleux, A. F., rue des Vieilles-Haudriettes, 6.
Canson et Montgolfier, papeteries de Vidalon, Annonay (Ardèche).
Carpentier, J. (ateliers Ruhmkorff), rue Champollion, 15, et rue Delambre, 20.
Casanova, J., rue Marcadet, 98.
Cazésus, G., rue de Miromesnil, 92.
Charlot et Cie., rue St. Ambroise, 25.
Chaudron, L., boul. St. Germain, 229.
Collin, A. F., rue Montmartre, 118.
Combettes, L. de, rue de Bondy, 92.
Cie. des chemins de fer du nord, rue de Dunkerqui, 18.
Courtot, C., rue Caumartin, 75.
Crosse, rue des Vosges, 3.
Deboyeux, A., rue des Blancs-Manteaux, 41.
Degas, Ch., rue de Sévres, 28.
Delahaye, V., rue d'Aboukir, 3, Courbevoie.
Deschiens, E., boul. St. Michel, 123.
Desruelles et Bourdoncle, avenue Percier, 8 bis.
Digney frères, rue des Poitevins, 4, 6 et 8.
Dorizon et fils, rue St. Sabin, 58.
Douce et Cie., rue de Rivoli, 116.
Ducretet, E. et Cie., rue Claude-Bernard, 75.
Dumoulin - Froment, rue Notre - Dame - des-Champs, 85.
Esquerré-Cabalé, avenue des-Champs-Elysées, 28.
Estienne, boul. de Vaugirard, 132.
Felten et Guilleaume, représentés à Paris par Jacquot et Casson rue des Bourdonnais, 30.
Fontaine-Fourmon, rue Grenier-St.-Lazare, 11.
Fontenilles, V., boul. Haussmann, 38.
Frion et Thierré, rue Roi-de-Sicile, 50.
Gaiffe, L. A., rue St. André-des-Arts, 40.
Gautier, E., rue de l'Université, 48.
Gaubret, P. T., rue de Grenelle, 10.
Geoffroy, H. (succ. de Raimbert et Cie), rue des Rigoles, 71, et rue de l'Ermitage, 50.
Gouamier (Cornatto succ.), rue Michel-le-Comte, 23
Gras, J., rue Bellechasse, 41.

Digitized by Google

Télégraphie (Appareils et fournitures de)—*continué.*

Gravollet, E., papier-bande pour appareils télégraphique, boul. Beaumarchais, 38.
Gressier, E., rue de Lyon, 3.
Guérin, Ch., rue de Naples, 72.
Guérin, E. rue Montmorency, 5.
Guérot, rue Daguerre, 57.
Hardy (Hayet et Lignereux succ.), avenue de la Motte-Piquet, 6.
Hequet, rue de Grenelle, 103.
Houzeau, L. rue Rousselet, 11.
India Rubber, Gutta Percha, and Telegraph Works Co., Limited, boul. de Sébastopol. 97.
Jacquemier, R, avenue de Neuilly, 122.
Jamelin, V., rue St. Maur, 90.
Jarriant, rue Pierre-Charron, 25.
Jarriant jeune, rue Bélidor, 10.
Joly, H. rue du Cherche-Midi, 19.
Jordery, C., rue Montagne, 26.
Lapointe, G., rue St. Sébastien, 9.
Lefebvre, E., rue de la Cérisaie, 13, usine à Montreuil, près Paris.
Lefèvre, rue des Repos, 31 et 33.
Legay, rue Langier, 42.
Lenczewski, L. et., Cie., rue de la Montagne-ste-Geneviève, 25.
Letourneau, E., avenue Montaigne, 37.
Létrange, L. et Cie., rue des Vieilles-Haudriettes, 1.
Loiseau, A. fils, rue de Richelieu, 29, ateliers, rue Fontaine-au-Roi, 57.
Makenstein, H., rue St. Jacques, 71.
Maiche, L. et Cie., rue Louis-le-Grand, 3.
Mandroux, L. V. rue Caumartin, 71.
Mangenot, rue d'Ulm, 48.
Marc, J., rue Pavée-Marais, 12.
Marcillas, passage Bosquet, 19.
Menier, rue du Théâtre, 7.
Metivier, A., rue de Malte, 19.
Meyer, B., boul. St. Denis, 1.
Michaels, J. P., avenue de l'Opéra, 45.
Mignon et Rouart, boul. Voltaire, 137.
Mirand, fils, rue Galande, 57.
Monti Ch., claviers, en ivoire et celluloïd, rue Oberkampf, 127.
Mors, L. (succ. de P. Prudhomme), rue St. Martin, 4 bis ; usine, rue du Théâtre, 48.
Muller, E., rue de Bondy, 66.
Napoli, D., controleur du ronde de nuèt, faub. Poissonnière, 98.
Noé, C. F., télégraphe Morse pour la démonstration, rue Laromiguière, 9.
Paris, E., et Cie., rue Paradis-Poissonnière, 47.
Paul Jamin et Cie., rue de Parme, 10.
Pelletier, A. L., appareils de tous genres, rue de Rome, 78.
Pierre, F., boul. Malesherbes, 79.
Ramondot, rue Sedaine, 11.
Rattier et Cie., rue d'Aboukir, 4, usine à Bezons (Seine-et-Oise).
Rault et Chassan, poste Morse portatif, rue Bonaparte, 62.
Sieur, J. X. E., divers systèmes de double transo mission, boul. St. Marcel, 38.

Télégraphie (Appareils et fournitures de)—*continué.*

Société anonyme des hauts fourneaux, fonderies duplex, rue de l'Ouest, 46.
et forges de Franche-Comté, avenue Dau
Société universelle d'électricité Tommasi, rue de Provence, 11.
Solignac et Cie., sonneries électriques ; tableaux indicateurs, rue St. Maur, 208.
Terral, P., appareil Hughes pour transmission mesnil, 116 et 118.
Trouvé, G., rue Vivienne, 1.
Vauzelle et fils, rue St. Maur, 146.
Vinay E. (Postel-Vinay succ.), rue Vaneau, 38.
Willot, appareils pour la correspondance, par un seul conducteur, rue de Boulainvilliers, 57.

Télégraphie Pneumatique.

E.—Pneumatic Telegraphy.
G.—Pneumatische Telegraphie.

Ducommun, boul. de Magenta, 18.

Téléphones.

E.—Telephones.
G.—Telephonen.

Bonis, Mme., rue Montmartre, 18.
Breguet, quai de l'Horloge, 39.
Cie. internationale des téléphones, rue de Provence, 31.
Courtot, C., rue Caumartin, 75.
De Baillehache, E.
Deschiens, E., boul. St. Michel, 123.
Geoffroy, H., rue des Rigoles, 71.
Journaux, J., rue des Cevennes, 56.
Lenczewski, L., et Cie., rue de la Montagne St. Geneviève, 25.
Locht-Labye, de, rue de Cévennes, 56.
Maldant, E., rue Armaillé, 21.
Mors, L., rue St. Martin, 4 bis.
Pelletier, A. L., rue de Rome, 78.
Société de l'electrophone, rue Louis-le-Grand, 3.
Société Générale des Téléphones (systèmes Edison, Gower et autres), société anonyme au capital de 8,650,000 fr., rue Caumartin, 41.
Siège Social—66, rue des Petits-Champs.
Bureaux Succursales a Paris—27, avenue de l'Opéra ; 4, rue de Logelbach ; 204 bis, boul. de la Villette ; 10, place de la Républiqne ; 24 et 26, rue de Lyon ; 20, avenue des Gobelins ; 62, rue du Bac ; 123, rue Lecourbe ; 80, rue de Passy.
Succursales dans les départements—Lyon, 1, rue Neuve ; Marseille, 14, rue de la République ; Bordeaux, bains sud Quinconces ; Nantes, 14, rue de la Fosse ; le Hâvre, 33, rue de Bourse ; Lille, 1 et 3, pl. de la Gare.
Vinay, E. (A. Postel-Vinay succ.), téléphones et microphones de tous systèmes, installation de lignes téléphoniques, rue Vaneau, 38.

Digitized by Google

Tréfilerie de Fils d'acier, de fer, de laiton et de zinc.

E.—Wire Drawers.
G.—Draht-Stahl-Eisen, &c.

Aubert et Marquiset, rue des Vinaigriers, 43.
Bachollet, Grouard et Cie., laminage et tréfilerie de métaux, rue Morand, 2 et 4.
Cailar, J. M., spécialité de fil et barreaux, avenue Parmentier, 4.
Cercelet, fils de fer, faub. St. Martin, 188.
Cope et Cie., rue Perdonnet, 13.
Dallemagne, Ch., fils de fer clairs et recuits, rue Grange-aux-Belles, 59.
Daulton, J., fils d'acier en tous genres, rue des Vinaigriers, 37 et 38.
Denis, E., rue Amelot, 90.
Dopfeld, trefilerie de laiton, &c., rue des Tournelles, 52.
Jolibois (succ. Mme. Bonis), rue Montmartre, 18.
Mollot, H., rue Albuoy, 21.
Muller, E., acier, fer, cuivre dressage, rue de Bondy, 66.
Petitjean et Belpêche, rue des Vinaigriers, 29.
Regnier, L., fils de fer clairs, ou recuits, boul. Voltaire, 36.
Société anonyme des forges et aciérie de St. Hippolyte, faub. Poissonnière, 8.
Société anonyme des mines et fonderies de Pontgibaud, rue Châteaudun, 15.
Sorgue, P., spécialité, de fil fin, dit carcasse, passage Corbeau, 9.
Verschave, E., quai de la Marne, 44.

Tubes et Tuyaux.

E.—Tubes and Pipes.
G.—Röhren.

BOOTH, J. & CO., Sheepcote st., Birmingham.
Brown, J. S., tubes en fer, cité Trévise, 2.
Clausel et Cie., tubes en tôle plombée et bitumée, rue de Madrid, 15.
Daulton, J., tuyaux en fer étiré, en acier, en cuivre, rue des Vinaigriers, 37 et 38.
Dax et Cie., rue de Madrid, 15.
Delaporte, G., et Cie., rue des Bourdonnais, 33.
Delmas fils, plomb et étain, rue d'Angoulême, 26.
Descours, A., rue Bergère, 30.
De Singly et Cie., rue d'Allemagne, 196.
Doulton et Cie., tuyaux en grès, rue Paradis-Poissonnière, 6.
Edoux, rue Lecourbe, 72, 74, 76 et 78.
Favre et Cie, fer, rue Buffault, 26.
Festugière, rue Terrage, 4.
François-Labbé (R. Peck succ.), cuivre et fer, boul. Richard-Lenoir, 53.
Gandillot et Cie., fer, rue des Vinaigriers, 37 et 38.
Grimault et Cie., fers creux, quai Jemmapes, 66.
Hahn, A., faub. St. Denis, 148.
Hamon, A., plomb, rue de la Verrerie, 58.
Hubin, F., plomb, étain, cuivre, rue de Turenne, 14.
Hutchinson et Cie, caoutchouc, rue Hauteville, 1.
Laveissiére et fils, rue Elzévir, 12.
Létrange et Cie., rue des Haudriettes, 1.

Tubes et Tuyaux—*continué.*

Mathelin et Garnier, Fonderie de tuyaux coulés debout a Lille, avenue Daumesnil, 125 et 127.
Martiny, J. L. et Cie., caoutchouc, rue des Petites-Ecuries, 13.
Menier, rue du Théâtre, 7.
Mercier, T., caoutchouc, boul. Magenta, 31.
Mignon, Rouart et Delinières, quai Jemmapes, 66.
Monduit et Béchet, rue Chazelles, 35.
Niekmilder et Cie., rue Mouton-Duvernet, 12.
Rattièr et Cie., caoutchouc, rue d'Aboukir, 4.
Ryckbosch, A., quai Valmy, 19.
Société anonyme des hauts fourneaux et fonderies de Brousseval, rue Terrage, 4.
Société anonyme des hauts fourneaux et fonderies du Val d'Osne, boul. Voltaire, 58.
Société anonyme des mines et fonderies de Pontgibaud, rue Châteaudun, 15.
Tavernier (Vve.) boul. St. Martin, et rue Lafayette, 233.
The India Rubber, Gutta Percha & Telegraph Works Co., Limited, caoutchouc, boul. de Sébastopol, 97.
Vallée Poussin, L. de La, tuyaux en fonte, place Vendôme, 16.

Verreries.

E.—Glass Works.
G.—Glas—Fabr.

Lissaute et Cosson, fabriques à Aubervilliers (Seine) dépôt, rue Martel, 12.
Paris, E., et Cie., rue Paradis-Poissonnière, 47.
Seguy et fils, rue Monsieur-le-Prince, 53.
Société anonyme de fabrication de produits chimiques pour les sciences et l'industrie, rue des Ecoles, 42 et 44.
Serrin, Vor., boul. St. Martin, 1.

Zinc (Mines et Usines).

E.—Zinc Manufacturers.
G.—Zink-Hütten und Schmelzer.

Bidault et Gruel, rue Lakanal, 17 (Paris-Grenelle).
Cie. anonyme des mines et fonderies de Santander et Quiros, rue Lafayette, 86.
Cie. française des mines du Laurium, rue Taitbout, 63.
Cie. royal Asturienne, rue de Malte, 50 ter.
Debladis, J., passage Tallandiers, 9.
Gilbert, rue Ste-Croix-de-la-Bretonnerie, 20.
Hubin, F., rue de Turenne, 14.
Lefebvre, A., rue Amelot, 84.
Létrange, L. et Cie, rue des Haudriettes, 1.
Oeschger, Mesdach et Cie, rue St. Paul, 28.
Société anonyme des mines et fonderies de zinc de la Vieille-Montagne, rue Richer, 19.
Société anonyme des mines de malfidano (Sardaigne), rue Lafayette, 12.
Société anonyme des zincs française, rue du Quatre-Septembre, 14.

Digitized by Google

ANNUAIRE ELECTRIQUE,

J. A. BERLY.

DÉPARTEMENTS—PROFESSIONS.

Brevets d'invention.

E.—Patent Agencies.
G.—Patent-Bureaux.

Bachelu, Hotel de Ville, 49, Lyon.
Bretton, L. C., rue Grenette, 24, Lyon.
Brocard, rue Ferrandière, 44, Lyon.
Bureau des brevets d'invention, avenue de Saxe, 66, Lyon.
Gonnard, F., Cours Morand, 36 bis, Lyon.
Lépinette et Rabilloud, avenue de Saxe, 66, Lyon.

Caoutchouc.

E.—Indiarubber.
G.—Caoutchouc-Fabr.

Bandier, J., et Cie., rue du Jardin des Plantes, 44, Marseille.
Borissow, C., A Fiens, 3 ter., Lille.
Brouchier et Cie, rue de la République 29, Marseille.
Carron, A., rue Notre Dame, 215, Lille.
Christy, F., rue de Béthune, 41, Lille.
Croze-Magnau, A., et Cie., boul. National, 124, Marseille.
Degrave, E., rue de l'Ommelet, 73 à Boubaix, Lille.
De Nevrezé, A., rue Intendence, Bordeaux.
Desreumaux, L., Vieux-Faubourg, 8, Lille.
Imbert Jules, agence et depôt de la Compagnie Franco-Americaine, J. L. Martiny et Cie, rue Haxo, 19, Marseille.
Lefèbvre, H., boul. des Écoles, 21, Lille.
Lestrade, F. de, rue Chevalier-Rose, 27, Marseille.
Lugult fils, rue Bouguière, 44, Bordeaux.
Martine, Mme. rue de Roubaix, 15, Lille.
Petit, J., rue St. Remi, 56, Bordeaux.
Rouzaud, J. C., rue Colbert, Marseille.
Vivez, rue Douves, 41, Bordeaux.
Wardavoir, Hoël, rue Esquemoise, 61, Lille.
White, Child et Cie., boul. de la Liberté, Lille.

Courroies (Fab. de).

E.—Strap Manufacturers.
G.—

Becquet, Cornille et Beuscart, rue Flandre, 62, Lille.
Berger, Place St. Michel, 2, Lyon.

Courroies (Fab. de)—*continué.*

Bertholon, A., quai de la Guillotière, 9, Lyon.
Borissow, C., à Fiens, 3 ter., Lille.
Boutry-Van, Isselsteyne, rue du Vieux-Marché-aux-Moutons, 8, Lille.
Christy, F., rue de Béthune, 41, Lille.
Constant, G., rue Nationale, 172, Lille.
Corcellet, Bernard et Cie, rue de la Barre, 2, Lyon.
Couchot, H. Jallifier et Cie., quai de la Guillotière, 24, Lyon.
Desrumeaux-Delemazure, rue de la Paix, 42, Lille.
Dufour, jeune et fils, rue St. Pierre de Vaise, 34, Lyon.
Famezelle-Laviguerie, Amiens.
Faure, Cadet, rue François Dauphin, 4, Lyon.
Félix-Hunebelle, Chaussée St. Pierre, 17, Amiens.
François, J. rue Nationale, 247, Lille.
Gallien et Charton, quai de la Charité, 2, Lyon.
Lacollonge, P., avenue de Saxe, 218, Lyon.
Léger frères, Place des Hospices, 7, Lyon.
Magnin, J. et Cie., quai de Lerrin, 35, Lyon.
Martine, Mme. rue de Roubaix, 15, Lille.
Martine, J. B., rue Quenette, 5, Lille.
Neut, L., et L. Dumont, rue Notre Dame, 42, Lille.
Nugues, Aime, quai de la Charité, 12, Lyon.
Rivoire, avenue de Saxe, 66, Lyon.
Robert, quai des Brotteaux, 27, Lyon.
White, Child et Cie., boul. de la Liberté, 89, Lille.

Courroies mécaniques.

E.—Driving Band Makers.
G.—Maschinenriem-Fabr.

Dumas, E. et Cie., rue de la République, 80, Marseille.
Imbert, Jules, rue Haxo, 19, Marseille.
Lilvan, E. Aîné, boul. de la Paix, 14 bis, Marseille.
Rouzaud, J. C. et Cie., rue Colbert, Marseille.

Cuivre (Fonderies de).

E.—Copper Founders.
G.—Kupfer-Giessereien.

Manhès, P., quai Tilsitt, 15, Lyons.
Société Anonyme de Métallurgie de Cuivre, quai Tilsitt, 15, Lyon.

Digitized by Google

Cuivre (Mines de).

E.—Copper Mines
G.—Kupfer-Bergwerke.

Société Anonyme des Mines de Cuivre de St. Jean-du-Gard, quai de la Pêcherie, 4, Lyon.

Electricien (Constructeur d'appareils électriques).

E.—Electrical Apparatus Manufacturers.
G.—Fabrikanten von electrischen Apparaten.

Minart, A., rue Neuve, 7, Amiens.

Electricité (Application de l').

E.—Electricians—Manufacturers.
G.—Electricitäts-Kundige.

Baron, J., rue Fondaudège, 85, Bordeaux.
Buchin, A., rue Rollaud, 11, Bordeaux.
Gaiffe et Darlot, Hotel de Ville, 13, Lyon.

Electricité Médicale.

E.—Medical Electricians.
G.—Electrotherapie.

Oré et Chagnoleau, rue du Palais de Justice, 36, Bordeaux.
Osselin, E., Asnières, Seine.
Seure, Dr. J., St. Germain-en-Laye.

Electro-Chimie.

E.—Electro-Chemistry.
G.—Electro-Chemiker.

Chutaux, T., place du Marché, 1, Levallois-Perret.
Demilly, P., Grande-rue, 15, Sèvres.

Entrepreneur d'Eclairage Electrique.

E.—Contractors for Electric Lighting.
G.—Electrische Beleuchtung—Unternehmer.

Mongin, Jules, fils, Rue Grignan, 23, 25 et 27, Marseille.

Fils Electriques.

E.—Electric Wires.
G.—Electrischer Draht.

Alamagny et Oriol, Saint Chamond, Loire.
Callaud, A., et fils, rue du Bocage, 26, Nantes.
Carue, Ph. J. B., rue St. Denis, 269, Paris.
Chappie, A., Le Mans (Sarthe).
Hache et Fepin-Lehaeleur, Vierzon, Cher.
Hodel, J. H., rue Fondaudège, 57, Bordeaux.
Legras, F. Th., avenue de Paris, 81, St. Denis.
Lenezewski, L., rue de la Montagne-ste-Géne vière, 25, Paris.
Menusier, E., rue Montbauron, 16, Versailles.
Parod, E. U., Plessis-Trévise, par Villiers-sur-Marne.
Taille, de la, Orléans.
Videcocq, F. A., Rugles, Eare.
Weieler et Montefiore-Levi, Angoulême, Charente.

Gutta Percha.

E.—Gutta Percha Dealers.
G.—Gutta-Percha-Händler.

Carron, A., rue Notre Dame, 215, Lille.
Dublin, (Vve.), rue Roland, 23, Lille.
Lefebvre, H., boul. des Ecoles, 21, Lille.

Ingénieurs—Chimistes.

E.—Engineers—Chemists.
G.—Ingenieure—Chemiker.

Gaillet et Huet, place Richebé, 7, Lille.
Lacombe, G., rue Bourgogne, 41, Lille.

Instruments de Chimie.

E.—Chemical Instruments.
G.—Instrumente für die Chemie.

Stutz, J., et Cie., rue Esquermoise, 13, Lille.
Wardavoir-Hoël, rue Esquermoise, 61, Lille.

Lumière Electrique.

E.—Electric Lighting.
G.—Electrische Beleuchtung.

Albaret, A., Liancourt, Rantigny, Oise.
Chollet et Rézard, rue Belle-Cordière, 10, Lyon.
Debrun et Law, quai Louis XVIII, 6, Bordeaux.
Duchesne-Fournet, Le Breuil-en-Auge, Calvados.

Machines Magnéto-Electriques, etc.

E.—Magneto-electric Machines.
G.—Magneto-electrische Maschinen.

Chameroy, H., Maisons-Laffitte, Seine-et-Oise
Giraud, F., rue de Paris, 19, Clichy.
Pilleux et Quesnot, à l'Italienne, près Beauvais, Oise.

Manganèse.

E.—Maganese.
G.—Braunstein.

Régnault, R. et Cie., avenue de Paris, 20, St. Denis (Seine).

Mécaniciens.

E.—Engineers—Consulting.
G.—Ingenieure—Consultirende.

Bachelu, L., Hotel de Ville, 49, Lyon.
Bouilly, C. T., Chemin d'Arès, 50, Bordeaux.
Brochier et Cie., rue de la République, 23, Marseilles.
Carde Aîné, route de Toulouse, 79 et 81, Bordeaux.
Claparède et Cie., St. Denis (Seine).
Daumas, E. et Cie., rue de la République, 80, Marseille.
Decourt, A., rue Jardin des Plantes, 26 et 28, Marseille.
Fraissinet et Cie., place de la Bourse, 6, Marseille.
Funel et Schumacher, boul. National, 243, Marseille.

Digitized by Google

Mécaniciens—*continué.*

Grangé T. et Cie., rue Sullivan, 42, Atéliers rue d'Arés, 237, Bordeaux.
Labarre, L., boul. National, 375, Marseille.
Long, H. et fils, rue St. Bazile, 47, Marseille.
Ménard frères, boul. du Rouet, 27, Marseille.
Paget et Lagier, Grand-Chemin-d'Aix, 72, Marseille.
Rikkers, A., rue Petit, 11, St. Denis (Seine)
Société Centrale de Construction de Machines, route d'Aubervilliers, 50, Pantin (Seine).
Stapfer de Duclos et Cie., boul. de la Major, Marseille.

Mécaniciens—constructeurs.

E.—Engineers—Mechanical.
G.—Ingenieure—Maschinenbau.

Boucheron, J., rue Tanneurs, 22, Lille.
Boyer, E., Pont-à-Raisnes, 3 et 5, Lille.
Buffaud, B. et T. Robatel, rue de Baraban, 27, Lyon.
Chanavat et Jurine, rue Vauban, 70, et rue Dussaussoy, 5, Lyon.
Christy, F., rue de Béthune, 41, Lille.
Colombier et fils, rue des Tuileries Vaise, 24, 26 et 28, Lyon.
Combe Barbaur et Combe, rue Nationale, 179, Lille.
Compagnie de Fives, Lille, (Siège Sociale à Pari rue Carmartin, 64) Ateliers à Fives-Lille (Nord), et à Givors (Rhône).
Debiaune et Cie., Docks-Vaise, Lyon.
Demange, P. et M. Satre, Chemin de Gerland, 10, Lyon.
Devergier, A. Piquet et Cie., rue St. Cyr, 25, (Vaise), Lyon.
Dossche, J., rue Plaine, 90, Lille.
Dujardin, A., Usines, rue Palikao et de Lens Lille.
Dumont, L., rue Notre-Dame, 42, Lille.
Elardin Aîné, rue St. Joseph, 8, Lyon.
Febve, rue de la Claire Vaise, 18, et 20, Lyon.
Fumey-du-Moulin, rue Beauharnais, 8, Lille.
Gossart frères et Warin, Faubourg de Roubaix, 173, Lille.
Greenwood et Batley, rue Maubeuge, Lille.
Jean, J. et Peyrusson, rue d'Isly, Lille,
Lams, L., rue Masséna, 3, Lille.
Le Gavriau et fils, rue de Valenciennes, 52, Lille.
Lecoge et Cie., rue Douai, 101, Lille.
Meunier et Cie., rue des Processions, 80, Lille.
Pelfrene, Montieres-les-Amiens.
Satre, Cours Rambaud, 8 et 9, Lyon.
Schaal, fils, rue de Jouffroy, 7, Lyon.
Tatham, John (de Rochdale) rue de Béthune, 41 Lille.
Thomas-Jésupret, rue Colbert, 75, Lille.
Vallet, L., rue Palikao, Lille.
Villain, A. R. fils et Cie., rue des Rogations, 18, Lille.
Wauquer, E., rue de Wazemmes, 69, Lille.
Windsor, frères, rue Colbrant, 14, Lille.

Métaux.

E.—Metal Merchants.
G.—Metall-Händler.

Arthaud et La Selve, quai de l'Hôpital, 11, Lyon.
Béroud-Ludreau, et Cie., rue Ausone, 15, Bordeaux.
Brossette, F., quai Tilsitt, 26, Lyon.
Bruyas et Brizard, rue de la Charité, 24, Lyon.
Bureau, L., et J. Berthet, rue République, 29, Marseille.
Chalieux, Aîné, rue St. Sebastopol, 31 et 33, Lyon.
Dalmas, Et., Dieudonné, et Cie., rue Portia, 32 et 34 Comptoir-Grignan, 65, Marseille, Maison à Montpelier, boul. Jeu-de-Paume, 13.
Dumortier, F., Cours Rambaud, 10, Lyon.
Fayet-Mouton, fils, rue Monnaie, 9, Lyon.
Gronier-Darragon, boul. Victor Hugo, 18 et 20, Lille.
Guillot, Brossette, place Bellecour, 30, Lyon.
Holagray, A., et Fils, cours des Fossés, 10, et quai de Bourgogne, 52, Bordeaux.
Jouffroy, P., place Bellecour, 30 bis, Lyon.
Laclaverie, J. E., rue Porte-du-Caillon, 8, Bordeaux.
Lagache Fréres, rue des Allamandiers, 26, 28, et 30, Bordeaux.
Laurent, quai Pierre-Seize, 74, Lyon.
Laveillare, C., place St. Michel, 3, Lyon.
Lavie (Vve.) et Cie., rue du Hautoir, Bordeaux.
Lemercier, rue Beaumont 8, Marseille.
Le Nickel Société Anonyme (correspondants, MM. Manliès frères), quai de Tilsitt, 21, Lyon.
Manliès, P., quai Tilsitt, 15, Lyon.
Mortamet, Louis, et Cie., rue Poulaillerie, 15, Lyon.
Pochet Frères, place des Capucins, 40, Bordeaux.
Prunette Fils, boul. National, 95, Marseille.
Quantin et Avit, rue Palais-Grillet, 26, Lyon.
Robert, D., quai de Bourgogne, 29, Bordeaux.
Rouzard, J. C., rue Colbert, Marseille.
Salle, Wetzel, et Cie., C. Chapeau-rouge, 16, Bordeaux.
Sequin, (Vve.), Goncet, Fils, et Cie., rue Rome, 28, Marseille.
Senolet, G., rue Porte-dijeaux, 2, Bordeaux.
Société de Vezin-Aulnoye, Allies de Tourny, 24, Bordeaux.
Souchon, Fs., fils, quai Tilsit, 6, Lyon.
Sudre, A., place inter-d'Aquitaine, 8, Entrepôt, place Henri Quatre, Bordeaux.
Verdale, T., et Pradas, place Richelieu, 4, Bordeaux.
Vignon, Choquit, rue Franklin, 8, et rue de Castriesy; succursale, Port-du-Temple, 9, Lyon.

Minium (Fab. de).

E.—Red Lead.
G.—Kitt.

Lavie (Vve.) et Cie., rue du Hautoir, Bordeaux.
Villette, U., rue de Canteleu, 8, et boul. Montebello, Lille.

Digitized by Google

Moteurs Electriques.

E.—Electric Motors.
G.—Electrische Motoren.

Chameroy, H., Maisons Laffitte (Seine-et-Oise).
Chutaux, T., place du Marché, 1, Levallois-Perret.
Felix, C., Sermaize (Marne).
Gautier, P., Montfort l'Amaury (Seine-et-Oise).
Greil, P. G., au vieux Fort, Vincennes.

Nickel.

E.—Nickel.
G.—Nickel.

"Le Nickel" Société Anonyme; correspondents, MM. A. Seward et Cie., rue Vergniaud, 49, Bordeaux.
"Le Nickel" System Garnier, Société Anonyme; correspondents, MM. Chailan Frères, rue Montgrand, 45, Marseille.

Optique et de Sciences, &c.

E.—Optical Apparatus.
G.—Optische Apparate.

Osselin, E., rue du Maine, 3, Asnières (Seine)

Piles Electriques.

E.—Electric Batteries.
G.—Electrische Batterien.

Bizot, J., Aix en Provence.
Callaud, A. et fils, rue du Bocage, 26, Nantes.
Chutaux, T. place du Marché, 1, Levallois-Perret.
Legras, F. T., avenue de Paris, 81, St. Denis.
Vidie, J. et fils, route de Flandré, 48, Pantin (Seine).

Platine.

E.—Platinum.
G.—Platinum.

Faure et Kessler, Clermont-Ferrand.

Plomb.

E.—Lead.
G.—Blei.

Faure et J. B. Gautier fils, rue Grignan, 65, Marseille.

Porcelaines et Cristaux.

E.—Glass and Earthenware Fittings.
G.—Porzellan und Glas- Apparate.

Blanc et Cie., rue Paradis, 38, Marseille.
Colla et Callamand, rue Tour 4, Marseille.
Loliler fils, rue des Trois-Mages, 33, Marseille.
Mascarelly (succ. A. Maire), rue St. Ferréol, 77, Marseille.
Mussuri de Rozan, rue Vacon, 63, Glandevès, 1, 3, 5 et 7, et Lice St. Victor, 1, Marseille.
Niel, Louis, rue République, 1, Marseille.
Wachanru, A., rue Grignan, 2, Marseille.

Produits Chimiques.

E.—Chemicals.
G.—Chemicalien.

André, Marius et Lieutier, rue Pavillion, 9, et rue des Chartreux, 4 bis, Marseille.
Blondel, Jules, Usines du plan d'aren à Fos, Comptoir, rue Jemmapes, 1, Marseille.
Brigonnet et fils, route du Landy, 6, St. Denis.
Compagnie Générale des Produits Chimiques, au midi (Felix Gardair, administrateur, directeur), rue St. Ferréol, 51, Marseille.
Coutaut, G., et Eug. Avril, place Richelieu, 1, Bordeaux.
Gaillet et Huet, place Richebé, 7, Lille.
Gautier, L., et Cie., place de Terraut, 6, Usines à Pierre-Bénite, Lyon.
Gourjon, de Gayet et Cie., rue Montaux 6, Marseille. Fabrique à Montredon.
Grimes, B., et Cie., rue Sainte, 35, Marseille.
Guinon père fils et Jacquelain, quai de l'Hôpital, 7, Lyon.
Guinon, Picard et Jay, quai de la Charite, 4 et 5, Lyon. Usines, à St. Fons (Rhône).
Jalabert et Cie., rue Marseille, 31, Lyon.
Laurent, L., rue Neuve des Charpennes, Lyon.
"Le Nickel" Société Anonyme; correspondents, MM. Chailau frères, rue Mongrand, 45, Marseille.
Maurin, Léopold, rue Dieudé, 4, Marseille.
Randu, J., et Cie., rue Poulaillerie, 7, Lyon.
Société Anonyme des produits Chimiques, rue des Allamandiers, 28, Bordeaux.
Société Anonyme du Nord, rue des Canonniers, 10, Lille.
Société Marseillaise, Marseille.

Sonneries Electriques.

E.—Electric Bells.
G.—Electrische Glocken.

Bogey et Boige, avenue de Saxe, 216, Lyon.
Chatelain, V., Minart, rue Neuve, 7, Amiens.
Chollet et Rézard, rue Belle Cordière, 10, Lyon.
Choné, Dr., rue de Paris, 157, les Lilas (Seine).
De Bar, place Phillippe de Girard, Lille.
Grassi et Beux, au télégraphe, Grenoble.
Grobon et Vayer, rue Tupin, 28, Lyon.
Hyvert, rue Confort, 14, Lyon.
Loza, rue Puebla, 28, Lille.
Michaut, A., rue Basse, 64, Lille.
Ravet, E., rue Notré Dame, 50 bis, Lille.
Sauvajon, J., Tournon (Ardèche).
Sazérat, J., et Lorel, E., Brest.

Télégraphie (Appareils, etc.)

E.—Telegraphic Apparatus.
G.—Telegraphische Apparate.

Blanc, F., Grenoble.
Céfrey, E., boul. de Strasbourg, 186, Le Havre.
Chambrier, A. E., Charleville (Ardennes).
Chameroy, H., Maisons Laffitte (Seine-et-Oise).

Digitized by Google

Télégraphie (Appareils, etc.)—*continué.*

Chutaux, T., place du Marché, 1, Levallois-Perret.
Chollet et Rézard, rue Belle-cordière, 10, Lyon.
Germain, P., Clermont, Ferrand.
Nacfer, J., transmitteur morse circulair, Amiens.
Olsen, A., La Rochelle.
Rouvier, J. A. C., rue de Sauve, 21, Nîmes.
Passaquay, Màçon.

Téléphones.

E.—Telephones.
G.—Telephonen.

De Bar, place Phillippe-de-Girard, 3, Lille.
Société Générale des Téléphones (Siège Social à Paris), succursale:—Bains Sud Quinconces, Bordeaux.
Société Générale des Téléphones, place de la Gare, 1 et 3, Lille.
Société Générale des Téléphones, rue Neuve, 1, Lyon.
Société Générale des Téléphones, Siège Social à Paris; rue des Petits Champs, 66, Succursale, rue de la République, 14, Marseille.

Tréfilerie d'Acier.

E.—Steel Wire Drawers.
G.—Stahl Draht—Fabr.

Teste, A., père, fils et Pichat, rue Claire, 15 (Vaise), Lyon.

Tréfilerie d'or and d'Argent.

E.—Gold and Silver Wire Drawers.
G.—Gold- und Silber-Draht.

Bocuze, A., fils et Cie., rue Molière, 115, Lyon.
Comptoir, Lyon-Almande, S. Magaud, rue Lafont, 8, Lyon.
Jullien, Loizel et Cie., rue Vauban, 69, Lyon.
Richard Radisson et Cie., rue Préfecture, 7, Lyon.
Zacarian, R. D., rue des Capucins, Lyon.

Tubes et Tuyaux.

E.—Tubes and Pipes.
G.—Röhren.

Arthaud et la Selve, Quai de l'Hôpital, 11, Lyon.
Brochier et Cie., rue de la République, 29, Marseille.
Brossette, Quai Tilsitt, 26, Lyon.
Bruyas et Brizard, rue de la Charite, 24, Lyon.
De Singly, P. et Cie., route de Grenoble, 74,

Tubes et Tuyaux—*continué.*

De Singly, P. et Cie. (siege à Paris: rue d'Allemagne, 196), Ligne du Prado, 24, Marseille.
Dumont, L., rue Notre-Dame, 42, Lille.
Gruss et Cie, rue Basse, 15, Lille.
Guillet-Brossette, place Bellecour, 30, Lyon.
Imbert, Jules, rue Haxo, 19, Marseille.
Laurent frères, quai Pierre Scize, 14, Lyon.
Lavarielle, C., place St. Michel, 3, Lyon.
Marchand, E., Contour de l'hôtel de Ville, 10, Lille.
Matthieu-Peillon, rue Ste. Hélène, 44, Lyon.
Richardson, Charles, rue Sainte, 23, Marseille.
Rouzaud, J. C., rue Colbert (place Centrale), Marseille.
Savournin, A. et Cie., rue de la République, 34, Marseille.
Vignon-Choquit, rue Franklin, 8, Lyon.

Verreries (Fab. de).

E.—Glass Works.
G.—Glas-Fabr.

Allouard-Dumont, rue Pizay, 4 et 6, Lyon.
Borel et Cie., rue Chateauredon, 31, Marseille.
Bourget, Claude, rue des Augustins, 14, Lyon.
Braye, J. B., Entrépôt: rue Longue des Capucins (domain du Mont-de-Piété), 18 et 19. Comptoir: rue Petit St. Jean, 38, Marseille.
Compagnie Générale des Verreries, de la Loire, boul. du Muy, 41 et 43, Marseille.
De Queylar (Vve.), (fab. à St. Marcel, et à Givors), rue St. Jacques, 44, Marseille.
Loubaud fils, quai de la Guillotiere, 27, Lyon.
Société Générale de Verreries (Rozau, Leb. et fils), boul. de la Corderie 13, 15 et 17, Marseille. Succursale: quai du Canal, 7, Usine à Rive der Gier (Loire).
Verrerie de la Grosse Mouche (E. Curtillet et depuis, à Lyon), rue Paradis, 69, Marseille.

Verreries (Marchands de).

E.—Glass Merchants.
G.—Glas—Händler.

Isse, F., rue Longue des Capucins, Marseille.

Zincs.

E.—Zinc.
G.—Zink.

Arthaud et la Selve, quai de l'Hôpital, 11, Lyon
Boisot, J. B., rue de Condé, 8, Lyon.
Tilloy, A., rue des Capettes, 9, Amiens.

Digitized by Google

Digitized by Google

ANNUAIRE ÉLECTRIQUE

DES

ANNONCES FRANÇAISES.

Digitized by Google

J. A. BERLY,

Ingénieur Civil et Electricien,

16, NEW BRIDGE STREET,

LONDON, E.C.,

Auteur et Editeur de J. A. BERLY'S British, American and Continental ELECTRICAL DIRECTORY;

Correspondant anglais de { **"L'Electricien" de Paris;** / **"The Electrician," de New York.**

BREVETS pour appareils mécaniques et électriques, pris, développés, importés et négociés en Angleterre et à l'étranger.

MANIPULATEUR à contact périphérique, breveté système CUMMING, de New York.

ACCUMULATEUR, breveté système J. G. T. WOODS, de Londres.

CRAYONS ÉLECTRIQUES, brevetés système J. G. T. WOODS, de Londres.
(*Consommation réduite au tiers, augmentation de la puissance lumineuse.*)

ÉLECTRO-MOTEURS, brevetés système GRISCOM, à double induction.

MACHINE DYNAMO ÉLECTRIQUE, brevetée système LUMLEY, de New York.

ISOLATEUR télégraphique, téléphonique, et d'éclairage électrique, etc., breveté système J. SLATER LEWIS, de Birkenhead.

(*Pose de fils aériens instantanée et sans l'usage d'aucun outil.*)

Voir aussi—SECTION ANGLAISE; SECTION AMERICAINE; SECTION BELGE.

Digitized by Google

MÉDAILLES D'OR ET D'ARGENT, 1880-1881.

SOCIÉTÉ DE L'ÉLECTROPHONE,

3, RUE LOUIS-LE-GRAND, PARIS.

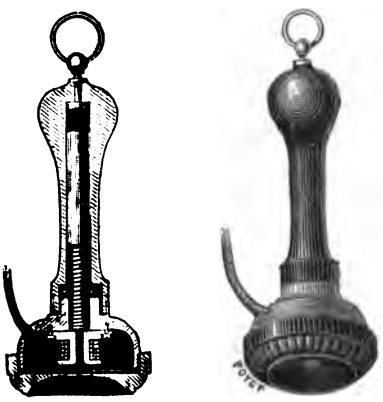


L'ÉLECTROPHONE,

Sme. Maiche,

Permet de parler aux plus grandes distances sur les lignes aériennes, souterraines, sous-marines.

Prix .. .. 100 fr.

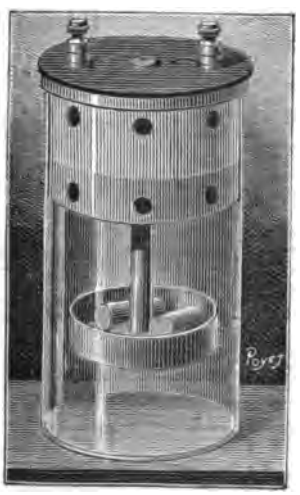


LE TÉLEPHONE RÉCEPTEUR,

Sme. Maiche,

Est absolument indéréglable ; très puissant.

Prix : La Paire : 30 fr.



LA PILE MAICHE

Fonctionne indéfiniment aux dépens de l'air, constante, économique, sans odeur ni danger, toujours propre, n'exigeant aucun entretien pour télégraphie, sonnerie, microphones, signaux, etc.

Prix .. .. 5.50 fr.

EMBALLAGE EN SUS.

Digitized by Google

COMPAGNIE GÉNÉRALE
DES
Horloges et Forces Pneumatiques,
LIMITED.

Capital 6,000 Shares of 500 francs.

SIÈGE SOCIAL:
5, RUE D'ARGENTEUIL À PARIS.

Contractors to the Municipality of Paris.

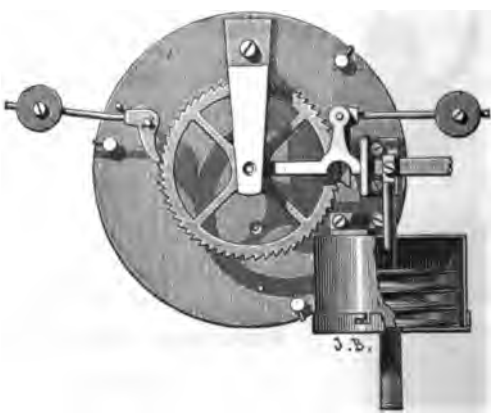
CORRECT TIME, LIGHT AND POWER DISTRIBUTED,

At Home to any number of Houses in a Town.

All the Public and Private Clocks Periodically Synchronized by means of

POPPS & RESCH PATENT PNEUMATIC SYSTEM,

THE SKETCH SHOWN HERE ILLUSTRATES THE WHOLE OF THE MECHANISM

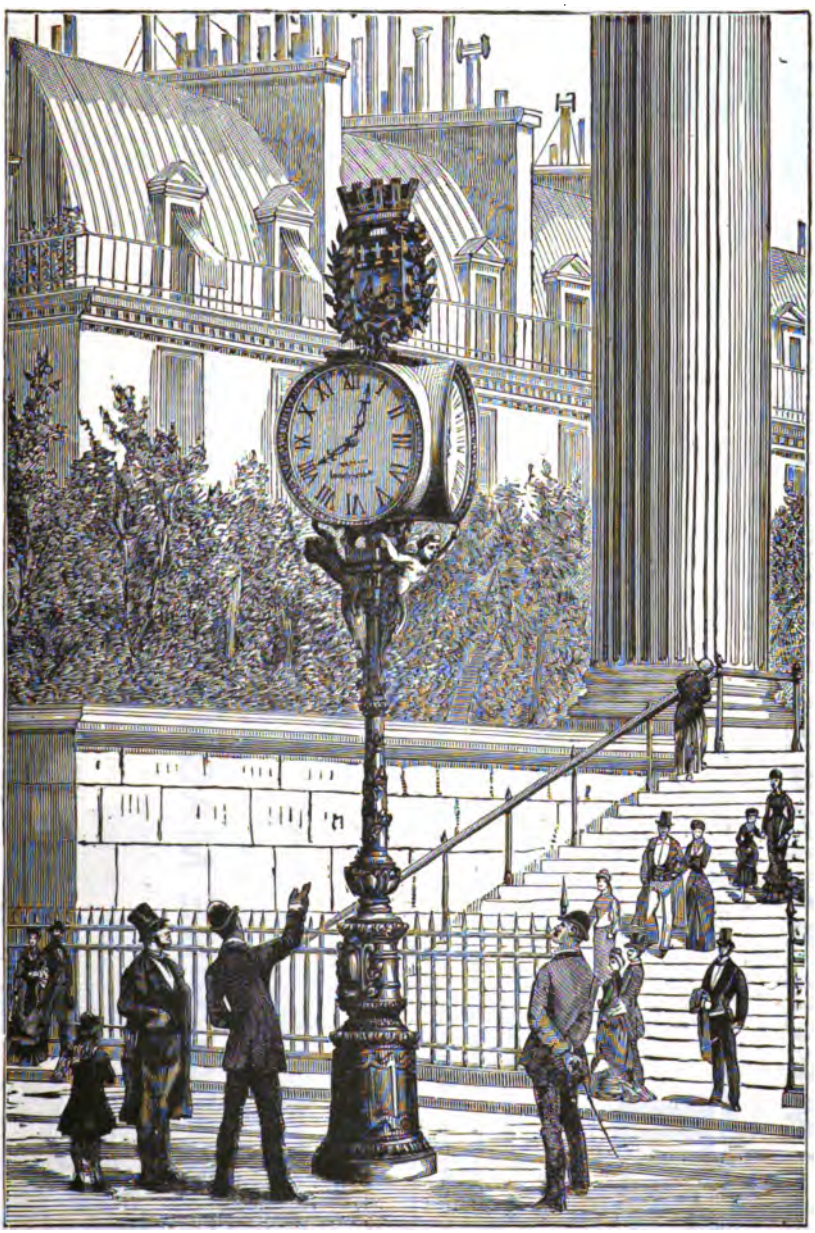


OF A PNEUMATIC CLOCK, WHATEVER ITS SIZE.

A Yearly Rental Charged at a very Moderate Figure for Time and Compressed Air, Sold a Few Pence per cubic Meter for Lightning and use of Power.

The Illustration on the page opposite shews a STREET PNEUMATIC CLOCK, as fixed in PARIS in the Public Thoroughfares.

Digitized by Google

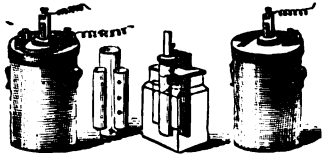


PNEUMATIC CLOCK AT THE ENTRANCE OF THE MADELEINE, PARIS.

Digitized by Google

QUATRE MÉDAILLES D'ARGENT ET UNE EN OR.

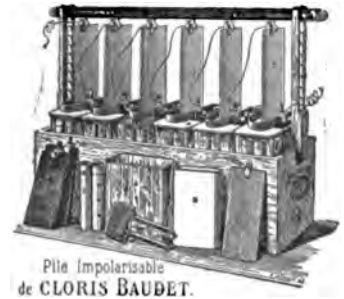
PILE IMPOLARISABLE DE CLORIS BAUDET.



No. 3. Fr. 17. No. 1. Fr. 10. No. 2. Fr. 15.

La Pile impolarisable est, *sans aucune odeur*, la plus énergique et la plus constante de toutes les piles électriques connues; la seule qui puisse très économiquement produire la lumière électrique. Elle est également propre à tous les usages; télégraphe; téléphone; sonneries; horlogeries électriques; dorure; argenture; nikelure; galvanoplastic; force motrice; bobines d'induction; médecine; lumière, etc.

Batterie de 6 Eléments Impolarisables



Pile Impolarisable de CLORIS BAUDET.

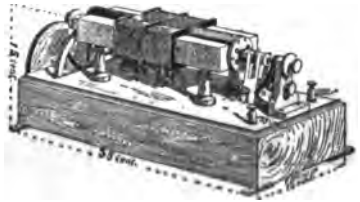
No. 4 et No. 5.

Le modèle No. 4 et No. 5 de la Pile impolarisable (modèle rectangulaire) surpasse en énergie (intensité électrique) celle de Bunsen, *énergie* qu'elle conserve pendant très longtemps (plusieurs mois); avec cette *énergie*, elle conserve sa propriété de *tension;* ces deux qualités réunies la rendent spécialement propre à la *lumière électrique*. Dépense d'entretien: pour la lumière, un centime l'heure par élément; ½ centime l'heure pour les autres applications; pendant le travail seulement.

PRIX

No. 4, haut.: 17 cm; côtés: 14/8 cm (1 litre 1/2). Fr. 12.—Batterie de six éléments dans leur caisse	Fr. 90.	,,
No. 5, — 22 cm; —— 18/9 cm 1/2 (3 litres). Fr. 17.— — — six éléments — do. —	Fr. 120.	,,
No. 4, Batterie de 12 éléments, avec commutateurs passant de la tension à la quantité	Fr. 200.	,,
No. 5, Do. 12 do. do. do. do.	Fr. 260.	,,

MOTEUR & MACHINE MAGNÉTO-DYNAMIQUE DE CLORIS BAUDET.



La figure du *Moteur simple*, ci-contre représente, en plan et en élévation, cet appareil au $\frac{1}{5}$ d'execution; il est *reversible* et peut indifféremment être utilisé pour produire la *force motrice* ou *l'électricité*. Il actionne: machines à coudre; pompes rotatives; tours; ventilateurs; embarcation; lampes électriques; galvanoplastie, et produit la lumière électrique, &c., &c.

PRIX

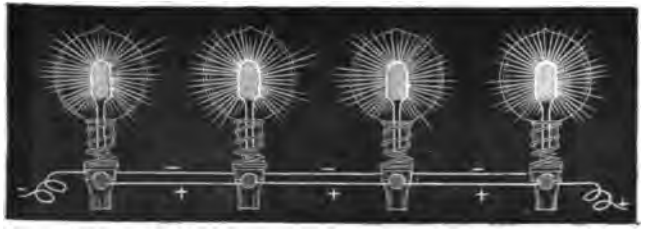
Appareil simple (à une seule bobine) avec changement de marche instantané reversible	Fr. 150.	,,
Appareil double (à deux bobines) do. do. do. do.	Fr. 300.	,,

NOTA. — *Nous garantissons le rendement de ce Moteur trois à quatre fois supérieur à celui de tous les petits moteurs connus jusqu'à ce jour.*

Digitized by Google

LUMIÈRE PAR LA PILE DE CLORIS-BAUDET ET PAR SES MACHINES :

LUMIÈRE INCANDESCENTE DANS LE VIDE.



1o.—Par la Pile impolarisable No. 4 ou No. 5 :

Une batterie de six éléments actionne *une* lampe de 4 à 6 bougies.

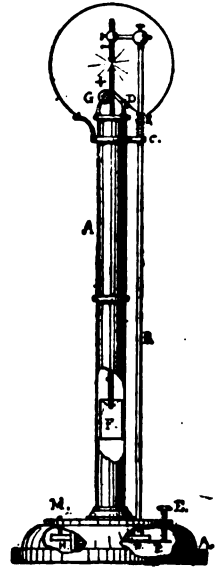
Deux batteries de six éléments actionnent *deux* lampes de 8 à 10 bougies.

Trois batteries de six éléments actionnent *quatre* lampes de 10 à 12 bougies.

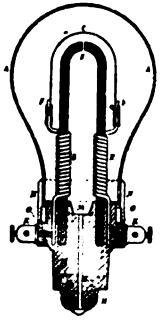
Et ainsi de suite engrandissant dans ces proportions.

NOTA.—Dans ce cas, les zincs des batteries sont entièrement immergés, soit, de 15 à 16 centimètres; chaque batterie produit la lumière pendant 50 à 60 heures; le coût est de 6 *centimes* l'heure par batterie.

Différemment, si l'immersion des zincs n'est que de 1 à 3 centimètres, et que le nombre des batteries soit double, la somme de lumière est triplée sa durée est portée à 300 ou 400 heures sans recharger les piles et la dépense d'entretien est de *un à deux centimes l'heure par batterie* (ce résultat est justifié). On peut voir cette lumière tous les jours et à toute heure du jour dans notre *salon obscur*, à Paris; tout accueil est réservé *aux visiteurs intéressés*.



Lampe photo-électrique à arc-voltaïque de CLORIS BAUDET.—Brt. s.g.d.g.



Lampe incandescente à surexcitation magnétique de CLORIS BAUDET.—Brt. s.g.d.g.

2e.—Par le Moteur reversible ou Machine dynamo-électrique :

Avec une force de 4 à 5 kilog. on actionne *une* lampe de 4 à 6 bougies.

Avec une force de 6 à 8 kilog. do. *deux* lampes de 4 à 6 bougies.

Avec une force de 8 à 10 kilog. do. *trois* lampes de 4 à 6 bougies.

Ce travail est produit par une appareil simple ; un appareil double produit deux fois autant.

A ARC VOLTAIQUE : soixante éléments impolarisables, No. 5, produisent 60 à 80 carcels (500 à 600 bougies) pour une dépense de Fr. 0.60 l'heure environ.

Notre brochure illustrée de Juin, 1882, *est envoyée franco gratuitement, a qui en fait la demande.*

CLORIS BAUDET, 90, RUE SAINT-VICTOR, 90, (Près le Square Monge) PARIS.

Digitized by Google

SOCIÉTÉ D'ETUDES ET CONSTRUCTIONS ELECTRIQUES,
(SOLIGNAC ET CIE.)

MACHINE DYNAMO de 10 Foyers, 600 Francs.

LAMPES À VERRE. (SOLIGNAC.)

208, RUE SAINT MAUR, PARIS.

ANNUAIRE

DES COMMERÇANTS

DE PARIS

ET DES DÉPARTMENTS DE LA SEINE ET DE SEINE-ET-OISE.

20e *Édition* — *Année* 1883.

Indecateur des Fabricants, Marchands en gros et en détail
Commissionaires en merchandises, Entrepreneurs, Officiers ministériels, etc.
de Paris et des Départements de la Seine et de Seine-et Oise.

1 FORT VOLUME, **Prix : 5 francs** (*pour la province, port en sus*).

ANNONCES:

la page 100 fr. ; 1/2 page 60 fr. ; 1/4 page 30 fr. Insertion : la ligne 50 cent.

L. SAUTTER, LEMONNIER & CIE

26, AVENUE DE SUFFREN, PARIS.

Machines dynamo-électriques de Gramme.

Projecteurs de Lumière Electrique pour la Marine.

Crayons artificiels de toutes dimensions, cuivres, garnis, etc.

Charbons pour Microphones.

Digitized by Google

LOCOMOTIVES ÉLECTRIQUES,

pour Tramways, Usines, chemins de fer, etc.

Specialité de locomotives pour Blanchisserie pliant par l'électricité, les toiles étendues sur les praries.

Médaille d'or de 1re. classe decernée par l'Academie Nationale.

C. DUPUY, Inr. Électricien Bte. S.g.d.g.,

17, RUE CONDORÇET, LISIEUX, CALVADOS, FRANCE.

Le chemin de fer de l'Exposition d'Amsterdam sera desservi par des Locomotives de ce système.

Digitized by Google

J. A. BERLY,

Ingénieur Civil et Electricien,

16, NEW BRIDGE STREET,

LONDON, E.C.,

Auteur et Editeur de J. A. BERLY's British, American and Continental ELECTRICAL DIRECTORY;

Correspondant anglais de { "L'Electricien" de Paris; "The Electrician," de New York.

BREVETS pour appareils mécaniques et électriques, pris, développés, importés et négociés en Angleterre et à l'étranger.

MANIPULATEUR à contact périphérique, breveté système CUMMING, de New York.

ACCUMULATEUR, breveté système J. G. T. WOODS, de Londres.

CRAYONS ÉLECTRIQUES, brevetés système J. G. T. WOODS, de Londres.
(*Consommation réduite au tiers, augmentation de la puissance lumineuse.*)

ÉLECTRO-MOTEURS, brevetés système GRISCOM, à double induction.

MACHINE DYNAMO ÉLECTRIQUE, brevetée système LUMLEY, de New York.

ISOLATEUR télégraphique, téléphonique, et d'éclairage électrique, etc., breveté système J. SLATER LEWIS, de Birkenhead.
(*Pose de fils aériens instantanée et sans l'usage d'aucun outil.*)

Voir aussi—SECTION ANGLAISE; SECTION AMERICAINE; SECTION FRANCAISE.

Digitized by Google

ANNUAIRE ÉLECTRIQUE,

J. A. BERLY.

BRUXELLES—PROFESSIONS.

Appareils Servant aux Mesures Electriques.

E.—Electric Measuring Instruments.
G.—Electrische Mess-Instrumente.

Compagnie Internationale des Téléphones, 24, rue des douze Apotres, Bruxelles. Atelier de Galvanomètre.

Schubart, ingenieur mécanicien, rue du Marais, 27 à Gand. Electromètre de Kohlrausch.

Electriciens.

E.—Electricians.
G.—Electriker.

Bouckaert & Cie., rue Verte, Bruxelles.

Dupont, boulevard de la Seine, Bruxelles.

Jaspar, rue Jonfotte, Liège.

Rau, ingenieur, boulevard de l'Observatoire, Bruxelles. Representant de la Maison Siemens & Halsek.

Richez & Cie., rue du Pont Neuf, Bruxelles.

Van Hulle, rue Chaussée d'Anvers, Bruxelles.

Vve. De Vos, rue des Crosades, Bruxelles.

Machines Magnéto-Electriques et Dynamo-Electriques.

E.—Dynamo and Magneto Electric Machines.
G.—Dynamo Electrische Maschinen.

Carette-Dobbel's, constructeur de Paratonnerres à Cinq Branches et à Cinq Conducteurs (à Meulebeke) Flandres Occidental.

Cassart de Fernelmont, constructeur (à Gembloux) Matériel en fer Galvanise.

Closset, Emile, constructeur, boulevard du Hainaut, à Bruxelles. Paratonnerres Système Melsens.

Compagnie Générale Belge de Lumiere Electrique, rue de Ligne, 9, Bruxelles.

Machines Magnéto-Electriques et Dynamo-Electriques—*continué.*

David, André, fils, constructeur, matériel en fer Galvanisé, rue des Six-Jetons, 84, à Bruxelles.

Flechet, Lambert & Cie., industriel, rue Lairette, à Liège. Poteaux Télégraphiques en fer.

Gloesener, constructeur, avenue d'Avroy, 70, à Liège. Machines Gloesener.

Jasper, constructeur, rue Janfosse, 12, à Liège. Machines Systeme Gramme.

Jowa, Jean, industriel, rue Gretry, 149, à Liège. Rouleaux de fils de fer Galvanité.

Montéfiore, Lévi, ingenieur civil, Chaussé de Mont, 415, à Bruxelles. Bronze phosphoreux pour Machine Eléctrique.

Ponson, Jules, ingenieur electrician, rue de Fragnée, 58, à Liège. Nouvelle Machine Magneto Electrique.

Sacré, Edmond, mecanicien, rue de Ruysbroeck, 23, à Bruxelles, modele de paratonnerre et pieces détachées.

Piles et Accessories.

E.—Batteries and Electrical Fittings.
G.—Electrische Batterien.

Administration des Télégraphes de L'Etat à Bruxelles, Pile Daniell, Pile Leclanché, Pile Dulaurier, Pile Minotte.

Brand, Joseph, Modèle de Pile destiné à l'Ensiegnment, rue de la Madeleine, 32, Bruxelles.

Giesbers, Jean Martin, ingenieur, Pile Economique, rue de la Conti, 5, Bruxelles.

Gloesener Constructeur d'appareil Electrique, Pile Chermo Electrique, avenue d'Avroy à Liège.

Mourlon & Cie., frabrique speciale zincs et de charbon de Cornue pour Pile de tout Système, 61, rue de Ruysbroeck, Bruxelles.

Somzée, Leon, Ingenieur Nouveau Système de de Piles d'un très petit volume, 217, rue Royale, Bruxelles.

Vve. de Vos., Constructeur mécanicien, Element de Pile, rue des Croisades, 4.

Digitized by Google

Télégraphie Signaux.

E.—Telegraph Apparatus.

G.—Telegraphische Apparate.

Barteloux, Victor, rue des Persil à Bruxelles. Commutateur Susceptible d'être manœuvré à distence.

Baudelet, mécanicien, rue de l'Hôpital, 39, Bruxelles. Télégraph imprimeur.

Bède, Emile, ingenieur, rue du Marteau, 41, Bruxelles. Poste Téléphonique Complet.

Brasseur, Léon, rue du Congrès, 28, Bruxelles. Appareil Télégraphiques à transmission Simultanie.

Castado, constructeur, rue de la Madeleine, 51, à Bruxelles. Sonnerie Electrique et Accessaires

Cerpaux, mecanicien constructeur, boulevard des Nord, 54, Bruxelles. Nouveau Signal Electrique.

Télégraphie Signaux—*continué.*

Courtois, Richard, constructeur, rue **Monulphe**, 45, à Liège, Collection d'Allumeur **Electriques.**

Dupon, ingenieur, boulevard de la **Senne**, 66, Bruxelles. Avertisseur d'incendie.

Gérard, Antoine, Place St. Lambert, 5, à **Liège.** Téléphones and Microphones.

Loppens, ingenieur à Gossche (Hainaut) **Sonneries** d'Alarm à déclanchement Electrique.

Richez et Cie., mécanicien, 26, rue **d'Argent** à Bruxelles. Appareil Morse Commutateur.

Société Anonyme Janus, 14, rue des **Croisades** à Bruxelles. Machines de précision. **Système** Edison et Blake.

Van Hulle, ingenieur, chausse d'Anvers, 78, à Bruxelles. Appareil Téléphonique.

Wery, Alexis, mécanicien, rue de l'Universite, 58, à Liège. Appareil Téléphonique et **Magneto** Electrique.

ATELIERS DE CONSTRUCTION

TÉLÉPHONES & TÉLÉGRAPHES

MOURLON & Cie., Bruxelles.

SONNERIES MAGNÉTIQUES.



PILES LECLANCHÉ.

ENVOI DU CATALOGUE ILLUSTRÉ SUR DEMANDE.

Digitized by Google

ANNUAIRE ÉLECTRIQUE,

J. A. BERLY.

RUSSIE—PROFESSIONS.

Analytical Chemists.

F.—Chimistes Analytiques.
G.—Analytische Chemiker.

Markownikow, Prof. of the Moscow University, Moscow.

Chemists.

F.—Chimistes.
G.—Chemiker.

Gedarillo, A. F., Stoleschnikoff-street, house Maliouschine, Moscow.

Chemical Glass Manufacturers.

F.—Cristalleries—Fabr.
G.—Chemisches Glas—Fabr.

Arndt, F. F., Znamenka, house Remisow, Moscow.

Chemical Merchants.

F.—Produits Chimiques (Marchands de).
G.—Chemische Händler.

Ferrein, C., Nikolskaja, house Bostandjoglo, Moscow.
Rhode & Fiedler, Nikolskaja, house Scheremetieff, Moscow.

Electricians.

F.—Electriciens.
G.—Electriker.

Deschewoff, M. M., Panteleimonowskaja, 2, St. Petersburg.
Dobrochotoff & Maikow, A. W., Powarskaja, house Pereversiaw, Moscow.
Geritsch, T., of the Nowarossinsky University, Odessa.
Kraewski, E. F., Miersnitzkaja, house of the Central Telegraph, Moscow.
Kretschmar, O. K., Tareskoi Boulevard, house Stroew, Moscow.
Liadoff, A. P., Jaroslaw Railway, station Baranowo.
Tichomiroff, W. A., Jaroslaw Railway, station Baranowo.

Electric Bell Manufacturers.

F.—Sonneries Electriques.
G.—Electrische Glocken.

Winterhalter, F. G., Stoleschnikow-st., house Romeiko, Moscow.

Electric Carbon Manufacturers.

F.—Charbons Electriques.
G.—Electrische Kohlen.

Büchsenmeister, A. J., Kineschma,, Gouv. of Kostroma.

Electric Light Companies.

F.—Eclairage électrique (Compagnies d').
G.—Electrisches Licht-Gesellschaften.

Electro-technic Company, St. Petersburg.
Jablotschkow, T. N., Obwodni, 86, St. Petersburg.

Electrical Instrument Makers.

F.—Instruments Electriques.
G.—Electrische Instrumente.

Greiner, H., Roschestwenka, house Belaep, Moscow.
Mielek & Co., Great Morskaja, 39, St. Petersburg.
Petsch, B., Makatowskaia, 23, Warshaw.
Piek, J., Medowaia, 497, Warshaw.
Richter, O. B., Admiralit.-square, 1/4, St. Petersburg.
Salles, W. & Wernier, A., Kusnetzki-bridge, house Gagarine, Moscow.
Schwabe, Kusnetzki-bridge, house Torletzki, Moscow.
Seeger, F., Kusnetzki-bridge, house Torletzki, Moscow.
Trindin, E. & Sons, Loubianka, house Trindin, Moscow.

Electrical Machine Manufacturers.

F.—Machines Electriques—Fabr.
G.—Electrische Maschinen.

Siemens & Halscke, Wassili Ostrow, 1st line, St. Petersburg.

Digitized by Google

Electrical Toys.

F.—Jouets Electriques.

G.—Electrische Spielzeug.

Fenoax & Co., Newski Prospect, No. 40/42, St. Petersburg.

Electro-Medical Apparatus.

F.—Appareils Electro-Médicales.

G.—Electro-medische Apparate.

Kaier, J. J., Twerskaja, house Zikine, Moscow.

Electrotypers.

F.—Galvanoplastie.

G.—Galvanoplastik.

Kowako, A. H., Porskowski-square, 95, St. Petersburg.

Romanenko, W. F., Pakrowska, house Schischelew, Moscow.

Engineers.

F.—Ingénieurs.

G.—Ingenieure.

Boeri, Miasnitzka, house Muscum, Moscow.

Daniloff, M. A., Sadowaia, house Daruloff, Moscow.

Johannson, K. J., near Krasni Worota.

India-Rubber Manufactories.

F.—Caoutchouc—Fabr.

G.—India Rubber and Gummi—Fabr.

Russian-American India-Rubber Co., St. Petersburg.

Patent Boiler Makers.

F.—Chaudières à Vapeur (Brevetés).

G.—Dampfkessel—Fabr.

Nowikow, D., Desna, Gouv. of Moscow.

Patent Offices.

F.—Bureaux de Brevets.

G.—Patent Bureau.

Knauff, F. F., Armenian-st., house Toropoff, Moscow.

Steam Engine Boiler Makers.

F.—Chaudières à Vapeur.

G.—Dampfkessel—Fabr.

Bromley Brothers, Kaluschskaia, house Bromley, Moscow.

Telephone Companies.

F.—Téléphones—Compagnies.

G.—Telephon—Gesellshaften.

Bell's Telephon Co., Kusnetzki-bridge, house Popow, Moscow.

Digitized by Google

Zweite vergrösserte und revidirte Ausgabe.

J. A. BERLY'S

ADRESSBUCH

DER

ELECTROTECHNISCHEN INDUSTRIE.

VERZEICHNISS

DER

Firmen Englands, Amerikas und des Continents,

WELCHE AUF DEM

GESAMMTGEBIETE DER ELECTROTECHNIK

THÄTIG SIND, SOWIE ALLER BEZUGSQUELLEN.

DES ELECTRIKERS "VADE MECUM."

PREIS 8 MARK.

LONDON:

HERAUSGEGEBEN DURCH WM. DAWSON & SONS, 121, CANNON STREET, E.C.
J. A. BERLY, 16, NEW BRIDGE STREET, E.C.

NEW YORK:
GEO. CUMMING, 219, EAST 18TH. ST.

BERLIN:
BERTH. MENDEL, W. LÜTZOWSTR. 84.

Digitized by Google

Digitized by Google

ZUWORT.

SEIT lange warmes Interesse an den immensen Fortschritten in der Anwendung der Elektricität nehmend, gelangte ich im Vorjahre im Besitz von J. A. BERLY'S „ELECTRICAL DIRECTORY". Wie aus demselben zu ersehen, war dem verehrten Herausgeber aus allen Landen grosse Befriedigung über das Unternehmen kundgegeben worden. Ich konnte nicht umhin, auch meinen bescheidensten Beifall zu äussern mit dem Wunsche, solches Werk auch für Deutschland erscheinen zu sehen. Die Branche, die aber bisher nur in England, Frankreich und Amerika grössere Dimensionen angenommen und schon mehr aus der rein technischen und wissenschaftlichen Sphäre in grössere geschäftliche Kreise übergegangen, liess aber ein gleiches Unternehmen für Deutschland allein unmöglich erscheinen und so begrüsste ich es mit Freuden, als ich darauf die Nachricht erhielt, das Werk werde im nächsten Jahre auf vielseitig ausgespochene Wünsche mit den Adressen etc. der anderen Hauptländer, auch Deutschlands, erscheinen und nahm mit Vergnügen das gleichzeitige ehrende Angebot an, meine bescheidenen Kräfte für die Bearbeitung des deutschen Theiles dem Werke bieten zu dürfen.

Die Zeit, die mir für die nöthige Zusammenstellung blieb, war kurz, aber ich hoffte durch die Münchener-Ausstellung vom 15. Septbr. bis 15. Oktbr. 1882 dafür gute Unterstützung zu finden. Ich legte dort neben meinen Arbeiten, mit denen ich in letzter Zeit für elektrische Beleuchtungs- und Kraft-Uebertragungszwecke für Stadtbahnen an Behörden und in die Oeffentlichkeit trat, die allseitig, auch behördlich, mir schätzbare Anerkennungen brachten, und wofür mir im Bibliothek-Zimmer der Ausstellung ein besonderer Tisch gewährt war, auch mehrere Exemplare des 1882er BERLY zur Ansicht aus, gab auch Prospecte in hinreichender Anzahl zur Vertheilung aus, die neben dem Nöthigen für mein Geschäft auch alles Nähere ausführlich über das Werk enthielten, sowie einen dafür geordneten Anmeldebogen.

Trotzdem auch unsere ersten Zeitungen auf das Unternehmen hinreichend aufmerksam machten, trotzdem sowohl das verehrliche Comité der Ausstellung wie die Besucher das Werk als eine Lücke ausfüllend und praktisch

Digitized by Google

wie nöthig erachteten, ist nicht die Unterstützung der Interessenten eine hinreichende gewesen, besonders nicht in pecuniärer Beziehung, dass das Unternehmen von Seiten der deutschen Interessenten-Kreise durch zahlende Insertionen und Anführungen gestützt wurde. Von Reklamen und Annoncen musste ich der hohen Kosten halber absehen, dieselben werden ja ohnehin auch meistens übersehen und bleiben daher nutzlos.

So war ich nach Schluss der Ausstellung, da die Zeit eilte, damit das Werk pünktlich erscheinen konnte, gezwungen, die Zusammenstellung nach Möglichkeit schnellstens zu erledigen und ich habe nicht Mühe und Kosten gescheut, um mich in Besitz einer grossen Anzahl Adressen zu setzen, welche mit der Branche verknüpft sind, um sowohl dem Herrn Herausgeber wie dem kaufenden Interessenten ein werthvolles nnd ausgedehntes Material zu bieten. Man wird von einem solchen Werk, das eine ganz neue Geschäftsbranche umfasst, bei seinem ersten Erscheinen unmöglichst und durchaus Vollständigkeit verlangen können und ich muss neben der gütigen Nachsicht des Herrn Herausgeber's besonders auch die der deutschen Interessenten nachsuchen, wenn manche Firma im Lande, die mit der Branche in Connex steht, fehlt oder nicht, wie nöthig, Aufnahme gefunden.

Da das Werk einzig in seiner Art und geradezu jedem Fachmann unentbehrlich ist, wird es nach Erscheinen dieser vervollkommneten zweiten Ausgabe ohne Zweifel und namentlich je mehr die Branche auch in Deutschland weitere Kreise an sich ziehen wird, an Bedeutung gewinnen und in seinem Werthe erkannt werden.

Da mir schon die Bearbeitung auch der nächstjährigen Ausgabe freundlichst wieder zugesagt wurde, bitte ich daher ergebenst alle Betheiligten und Interessenten, mich geneigtest in der neuen Zusammenstellung recht ausgiebig unterstützen, Fehler moniren und mir auch neue Eintragungen recht umfangreich nach Maassgabe des Inhalts zugehen lassen zu wollen. Anmeldebogen sind bei mir zu erhalten.

Mit öffentlichem Dank an den verehrten Autor des Werkes

BERLIN, W.,
30. *November*, 1882.

BERTHOLD MENDEL.

Digitized by Google

DEUTSCHES
ADRESSEN-VERZEICHNISS.
NACH GEWERBEN GEORDNET.

Accumulator- u. Batterie-Fabrikanten.

E.—Accumulator and Battery Makers.

F.—Accumulateurs d'Electricité.

Aron, Dr., Berlin.
Boettcher, Dr. E., Leipzig.
Bresch & Aron, Berlin.
Lessing, Dr. A., Underberg.
Poehlman, Underberg.
Schultze, O., Strassburg.
Zenger, K. W., Professor, Prag.

Asbest—Fabriken und Händler.

E.—Asbestos Manufacturers and Dealers.

F.—Amiante (Fab. d').

Dopp & Co., Berlin, Neu Kölln a/W. 16.
Frobeen, L., Berlin, Lindenstr. 21/22.
Pretzel & Co., Berlin, Rosenthalerstr. 19.
Schwartz & Co., Berlin, Kochstr. 73.

Beleuchtungs-Artikel.

E.—Light Fitting Manufacturers.

F.—Eclairage (Fab. d'appareillage d')

Baltzer & Sohn, Berlin, Alte Jacobstr. 2.
Berghausen, G., sr., Cöln a/Rh.
Campe & Co., Berlin, Seydelstr. 24.
Ehestädt & Robert, Berlin, Ritterstr. 31.
Ende & Devos, Berlin, Gitschinerstr. 74.
Gressler, Nat., Halle a/S.
Harsch & Co., Berlin, U. d. Linden 66.
Krause & Moedebeck, Berlin, Stralauerplatz 6/7.
Nielbock & Hees, Berlin, Kommandantenstr. 53.
Pintsch, Berlin, Andreasstr. 72/73.
Reuter, Alois, Sigmaringen.
Schäfer & Hauschner, Berlin, Friedrichstr. 233.
Spinn, J. C., & Sohn, Berlin, Wasserthorstr. 9.
STAUDT, EMIL, FRANKFURT A/M.
Stern, L., Aachen.
Stobwasser, C. H., & Co., Berlin, Wilhelmstr.
Tritschler, Winterhalter & Co., Oedhütte bei Fürth.
Valentin, J., Frankfurt a/M., Neue Mainzerstr. 56.
Westphal & Co., Berlin, Kommandantenstr. 41.

Bergbau u. Hüttenbetrieb.

E.—Metal Mines and Works.

F.—Mines et Usines de Metal.

Actien-Gesellschaft der Harzer Berg & Hüttenwerke zu Rübeland u. Zorge a/H., Blankenburg.
Actien-Gesellschaft Eisenhütte Prinz Rudolf, Dülmen.
Actien-Gesellschaft für Maschinenbau & Eisen-Industrie, Varel a. d. Jahde.
Actiengesellschaft für Blei-, Kupfer-, Silber- & Zinkerze, Friedrichsegen b/Oberlahnstein.
Annener Gussstahlwerk, Annen.
Appelt, Carl, Kohlen, Freiberg i/S,
Asthöfer, F., & Co., Annen, Westphalen.
Baroper Maschinenbau-Act.-Gesellsch., Barop.
Behling Söhne, B., Hellenthal.
Bergische Stahl-Industrie-Gesellschaft, vorm. Gebr. Böcker & v. d. Nahmer, Remscheid.
Berg- & Hüttenwerk, A. Hillebrant, Erze, Altenbecken, Rheinpr.
Berners, Wilh., Holz, Eisen, Blei & Glasurerz, Zülpich.
Berninghaus, Reinh, Berninghaushütte.
Billeter & Klunz, Aschersleben.
Bochumer Eisenhütte, Heintzmann & Dreyer, Bochum.
Bochumer Verein für Bergbau etc., Bochum.
Böcking, Ed., Neunkirchen.
Böcking, Rud., & Co., Halberger Hütte.
Böhmisch-Mährische Maschinenfabrik, Prag.
Böhnar & Köster, Limburg a. Lahn.
Bönnhoff, Ludwig, Wetter a. d. Ruhr.
Bongardt, Gebr., & Co., Limburg a. d. Lenne.
Bonzel, Josef, Olpe.
Borbet, C., Kohlen, Altena, Westph.
Borsig, A., Eisenerze & Kohlen, Borsigwerk.
"Charlotte", Altendorf b/Ueberruhr.
Brinkmann, G., & Co. Wetter a. d. Ruhr.
Commerner Bergwerk-Verein, Silber & Eisenerze, Commern, Rheinpr.
"Concordia", Kohlenzeche, Oberhausen a/Ruhr.
Dampf- & Spinnerei-Maschinenfabrik, vorm. Theod. Wiede, Chemnitz.
Dinnendahl, R. W., Huttrop-Steele.
Donnersmarkhütte, Oberschles-Eisen- & Kohlenwerke-Act.-Ges, Zabrze.
Dröge & Schetter, Unna.
Duisburger Hütte, Duisburg, Westphalen.
Dulheuer, W., Zink, Eisen & Blei, Bonn.
Egers & Engel, Berlin, Oranienstr. 183.

Digitized by Google

Bergbau u. Hüttenbetrieb.—*Fortsetzung.*

Ehrhardt & Schmer, Malstatt-Saarbrücken.
Eickhoff, Gebr., Bochum.
Eintrachthütte bei Schwientochlowitz.
Eisengräber, Klinckhart & Schreiber, Halle a/S.
Eisenhüttenwerk Keula bei Muskau.
Eisenhüttenwerk Lauchhammer b. Lauchhammer.
Eisenruth, Kohlen, Annen.
Eisen & Stahlwerk Hoesch, Dortmund.
Elbertzhagen & Glassner, Mähr.-Ostrau.
Erzherzog Albrecht'sche Maschinenbau-Anstalt, Ustow.
Fischer, C., Augsburg.
Fischer, C. A., Kohlen, Bingen a/Rh.
Fock, J. H., Kohlen, Altona a/E.
Fölzer Söhne, H., Siegen-Sieghütte.
Freund & Joachim, Berlin, Wallstr. 656.
Fuchs, Hugo, Kohlen, Bochum.
Fürstl. Liechtenstein'sche Maschinenfabriks-Direction, Adamsthal.
Fürstl. Salm'sche Eisengiesserei & Machinenfabrik, Blansko.
Gamann, H., Neunkirchen.
Gewerkschaft "Hoffnungsthal II", Eisen & Bleierz, Altenkirchen.
Gewerksch. "Sicilia", Eisenerze & Schwefelkies, Meggen, Olpe.
"Gnade Gottes, ver. Felde", Eisensteingrube, Langenberg, Schwarzenberg.
Gräfl. Stolberg'sche Maschinenfabr., Magdeburg.
Gutehoffnungshütte in Sterkerade.
Gutehoffnungshütte, Oberhausen a/Ruhr.
Haniel & Lueg, Düsseldorf.
Henschel & Sohn, Cassel.
Hermannshütte, Hörde.
Hofmann & Zinkeisen, Zwickau.
Holthaus, H. W., Dahlerbrücke i. W.
Hörder Kohlenwerk, Asseln b/Brackeln, Westph.
Horlohé, Hch., Laar.
Huber, Johann, Kulm.
Johannes-Erbstollen, Kohlen, Annen.
Justinius & Kamecke, Berlin, Lehrter Bahnhof.
Kachelmann & Sohn, Vihuye-Schemnitz.
Kästner, H. C. D., Kohlen, Bockwa b/Cainsdorf, Sachsen.
Kessler, W., Kohlen, Barup b/Dortmund.
Kgl. Berginspect., Steinkohle, Sandstein & Gips, Osterwalde, Hannover,
Kgl. Bergwerk, Grube "Itzenplitz", Illingen, R.-B. Trier.
Kgl. Hütten-Eisenerz, Kl.-Verwaltg. Bodenmais, Bodenmais, Baiern.
Klein, Gebr., Dahlbruch.
Kölnische Maschinenbau-Actien-Ges., Bayenthal.
König Friedrich-August-Hütte, Potschappel.
Königl. Eisengiesserei & Maschinenbau-Anstalt, Gleiwitz.
Koettgen, F. W., Barmen.
Krigar & Ihssen, Hannover.
Krompach Hernader Eisenwerk, Krompach-Zips.
Langnickel, F., Neustrelitz.
Limburger Maschinenbau-Actien-Gesellschaft, Limburg a. d. Lahn.
Lingke & Co., Aug., Freiberg.

Bergbau u. Hüttenbetrieb.—*Fortsetzung.*

Lossen, Gebr. J. C., Darmstadt.
Mackensen, A. W., Schöningen.
Maschinenbau-Actien-Gesellsch., vorm. Breitfeld, Danek & Co., Aussig a. d. E.
Maschinenbau-Actien-Gesellschaft "Humboldt", Kalk.
Maschinenbau-Actien-Gesellschaft "Union", Essen a. d. Ruhr.
Maschinenbau-Anstalt für Bergbau- & Hüttenbetrieb, Bielefeld.
Maschinenfabrik "Rhein & Lahn", Oberlahnstein.
Mechernicher Bergwerks-Act.-Ver., Bleierze, Mechernich, Rheinpr.
Meer, Gebr., M.-Gladbach.
Mehler, C., Aachen.
Menck & Hambrock, Ottensen.
Möller & Schreiber, Berlin, Monbijouplatz 10.
Mülheimer Maschinenfabrik & Eisengiesserei, Mülheim a. d. Ruhr.
Müller, Gust. Fr., Kohlen, Essen.
Münzner, F. A., Obergruna.
Naegler, Gustav, Oschersleben.
Nagel & Kaemp, Uhlenhorst.
Nenzel, Georg, Giessen.
Neumann, Koch & Stiennon, Sieghütte.
Neusser Eisenwerk, Daelen & Burg, Heerdt.
Nippchen, Gebr., Ocker & Silber, Neuleiningen b/Kirchheim a/Eck.
Nostitz'sches, Gräfl. v., Eisenwerk, Rothau.
Oechselhäuser, A. & H., Siegen.
Oehler, Paul, Ober-Altwasser.
Orenstein & Coppel, Berlin, Möckernstr. 120.
Ornontowitzer, Act.-Ges., Berlin, Krausenstr. 42.
Petry & Hecking, Dortmund.
Pilsener Maschinen- und Waggonbau-Actien-Gesellschaft, Pilsen.
Prager Maschinenbau-Act.-Gesellschaft, vorm. Ruston & Co., Prag.
Raab, Karsch & Co., Kohlen & Coaks, Mannheim.
Ravené, Jacob, Söhne & Co., Berlin, Neue Grünstr. 78.
Reska, Fr., Prag-Bubna.
Rheinische Röhren-Dampfkesselfabrik, A. Büttner & Co., Uerdingen a. Rh.
Rhein-Nassau'sche Bergwerks-Gesellsch., Blei, Zink & Silber, Stolberg b/Aachen.
Ruffer, G. H. von, Breslau.
"Satura", Act.-Ver., Zink & Bleierze, Bensberg b/Cöln.
Schalker Eisenhütte, Grevel & Co., Schalke.
Schmidt, G., Erben, Kohlen, Bockwa b/Cainsdorf, Sachsen.
Schmoll, F., Bergpr., Blei & Kohlen, Cöln.
Schmücking, A., Helmstädt.
Schubarth, Carl, Dortmund.
Schüchtermann & Kremer, Dortmund.
Schulde, W., Dudweiler.
Schulz & Sackur, Berlin, Wilhelmstr. 121.
Schuss, Gebr., Hammerhütte-Siegen.
Soeding, Jul., & v. d. Heyde, Hörde.
Soest, Louis, & Co., Düsseldorf.
Sonderman, W., Kohlen, Back b/Dahlh., Westph.

Digitized by Google

Bergbau u. Hüttenbetrieb.—*Fortsetzung.*

Stahlschmidt, Eberh., Ferndorf.
Stahlschmidt, Just., Aherhammer.
Steffen, Arnold, Haardt a. d. Sieg.
Stein & Co., Aachen.
Teplitzer Maschinenfabrik, Perutz & Finze, Teplitz.
Vereinigte König & Laurahütte, Berlin, Französischestr. 60/61.
Vereinigte Zwitterfelder Fundgrube, Zinn, Zink & Blei, Zinnwald i/S.
Verwaltung der Fürst-Erzb. Berg- und Hüttenwerke, Friedland.
Vormals Herzogl. Anhalt. Maschinenbau-Anstalt & Eisengiesserei, Actien-Gesellschaft, Bernburg.
Wachendorff, Frd., jun., Kohlen, Berg-Gladbach.
Wagner & Co., Dortmund.
Weissenburger, R., & Co., Roheisen, Mannheim.
Welterhütte bei Nicolai.
Wöhlert'sche Maschinenbau-Anstalt & Eisengiesserei, Act.-Ges., Berlin.
Wolff & Schaefer, Halle a. d. S.
Zeche "Friedrich", Erze, Alten-Bochum, Westph.
Zeche "Glückauf Tiefbau", Erz, Barup b/Dortm.
Zeche "Prinz von Preussen", Kohlen, Alten-Bochum, Westph.
Zeitz & Hartung, Sulzbach.
Zeitzer Eisengiesserei & Maschinenbau-Actien-Gesellschaft, Zeitz.
Zieleniewski, L., Krakau.
Zipser, Herm., Gleiwitz.
Zwickauer Maschinenfabrik, vorm. Brod & Stiehler, Zwickau.

Blas- und Pressformer.

E.—Mould Makers.
F.—Moules (Fab. de).

Fischer, Berlin, Rosstr. 2.
Lehman, F., Grüner Weg 45.
Schöppe, Berlin, Wasserthorstr. 65.

Blitzableiter-Fabriken.

E.—Lightning Conductor Manufacturers.
F.—Paratonnerres (Fab. de).

Harrach, Georg, München, Dachauerstr. 35.
Kernaul, J., München, Kreuzstr. 25.
Kirchhoff, H., Berlin, N., Chausseestr. 77.
Mix & Genest, Berlin, Prinzessinnenstr. 23.
Ulfort, Berlin, Schönhauserallee 122.
Wehr, Berlin, Ritterstr. 49.

Braunstein.

E.—Manganese.
F.—Manganèse.

WILHELM MINNER, ARNSTADT, THÜR.

Chemicalien—Händler, etc.

E.—Chemicals—Dealers.
F.—Produits chimiques (Marchands de).

Arzberger, Schoepff & Co., Eisenach.
Ascher, Dr. Max, & Co., Berlin, Friedrichstr. 131a.
Bachmann & Seippel, Hamburg.
Baerle, van, & Sponnagel, Berlin, Hermsdorferstr. 8.
Becker, C., Stralsund.
Benno, Jaffé & Darmstädter, Berlin, Greifswalderstr. 40.
Bischoff & Bergner, Lauban.
Borchers, Gebr., Goslar.
Borlocher, Otto, Augsburg.
Branmüller, H. & Sohn, Berlin, Zimmerstr. 35.
Brohme & Co., Bergen a/D.
Chemische Fabrik Heiligensee, H. Nendeck.
Chemische Fabrik Schering Co., Fennstr. 11/12.
Claasen, L. & Co., Ancona.
Ebers & Habermann, Berlin, Manteuffelstr. 21.
Elsner & Schwager, Berlin, Ritterstr. 65.
Gehe & Co., Dresden.
Goldschmidt, Dr. M., Berlin, Gitschinerstr. 91.
Hagen, Carl Gust., Augsburg.
Heyl's Laboratorium, Berlin, Eisenbahnstr. 4.
Kayser & Co., Charlottenburg bei Berlin.
Köpenicker Chemische Fabrik, Köpenick bei Berlin.
Kluge & Pocritzsch, Leipzig.
Kuhnheim & Co., Berlin, Lindenstr. 23.
Liebermeister, Dr. E., Unna.
Lienau & Co., Uerdingen.
Nève, Gebr. de, Berlin, Schiffbauerdamm 36.
Nienburger Chemische Fabrik, Nienburg.
Pohlmann & Co., Halle a/S.
Prücker, Ch., Hof.
Radruch, Gustav, Hamburg.
Schimpfle, J., Augsburg.
Silbermann, F. B., Augsburg.
Stassfurter Chemische Fabrik, Stassfurt.
Ulemann & Koch, Altenburg.
Wadehn & Flotow, Berlin, Elisabeth Ufer 30.
Worster & Grüneberg, Köln.
Wittich & Benkendorf, Berlin, Chausseestr. 19.

Chemiker.

E.—Chemists—Analytical.
F.—Chimistes analytiques.

Aarland, Dr. Georg, Stollberg bei Aachen.
Aron, Dr., Berlin, Fennstr. 14.
Bischoff, Dr., Berlin, Rosenthalerstr. 23.
Brackebusch, Dr., Berlin, Wilhelmstr. 118.
Braun, Dr. Otto, Berlin, SW., Enkeplatz 1.
Dulk, Dr., Berlin, Oranienstr. 85/86.
Frank, Dr. A., Charlottenburg bei Berlin.
Friese, Dr., Berlin, Prinzen-Allee 28.
Genz, Dr., Berlin, Köpnickerstr. 142.
Hörmann, Dr., Am Lustgarten Ia.
Jacobsen, Dr. E., Berlin, N., Müllerstr. 171.
Keller, Dr. Alvin, Berlin, N., Weissenburgerstr. 6.

Digitized by Google

Chemiker.—*Fortsetzung.*

Meytly, Dr., Berlin, Bergmannstr. 29/30.
Philipp, Dr. Jul., Berlin, NO., Landsbergerstr. 18a.
Schaedler, Dr. C., Berlin, SW., Puttkammerstr. 13.
Soltmann, Dr. E., Berlin, SW., Hollmannstr. 25.
Tetzer, R., Berlin, Wrangelstr. 111.
Vogt & Co., Friedrichsberg bei Berlin.
Ziureck, Dr. Otto, Berlin, S., Oranienstr. 127.

Chemische Fabriken.

E.—Chemicals—Manufacturers of.
F.—Chimistes industriels.

Achenbach, Ludw. Adolf, Marienborn.
Ascania, Actienges., Leopoldshall, Kr. Bernb.
Ascania, chem. Fabr., Stassfurt.
Actiengesellschaft der chem. Produktenfabr. Pommerensdorf, Stettin.
Actiengesellschaft für chem. Industrie, Schalke b/Gelsenkirchen.
Actiengesellschaft für chemische Industrie, Braubauerschaft b/Schalke, Westph.
Actiengesellschaft für chem. Industrie, St. Gabain, Channy & Ciroy, Cöln a/Rh.
Adam & Beer, Wiesbaden.
Adam & Co., Nürnberg.
Aders, J., Neustadt-Magdeburg.
Adrian, F., Mülhausen i/E.
Albert, H. & E., Biebrich a/Rh.
Algoever & Co., A., Breslau.
Andrae & Grüneberg, Leopoldshall, Kr. Bernb.
Appold, Charl., Wittwe, & Eichacker, Bolchen, Lothringen.
Appolt, Gebr., Sulzbach b/Saarbr.
Arge, Adolf, Chemnitz i/S.
Arlt & Borkowski, Dresden.
Artmann, Adolf, Theerproductenfabrik, Braunschweig.
Avenarius, Gebr., Gau-Algesheim.
Aypold, C., Wwe., St. Avold, Lothr.
Bader, T., Karlsruhe.
Baedeker, Jul., Bonn.
Baierische Actiengesellschaft für chem. u. landwirthsch.-chem. Fabrik., Heufeld, Oberbaiern.
Balls, Ludw., Worms a/Rh.
Bayer, Fr. & Co., Barmen, Rheinpr.
Bausch, G., Cannstatt.
Bechstein, W. L., Altenburg in Sachsen-Altenburg.
Behne & Hertz, Harburg a. d. Elbe.
Beit & Philippi, Hamburg.
Bengen & Co., Hannover.
Bengen, Gebr., Hannover.
Benkiser, J. A., Pforzheim.
Benque, C., Hamburg.
Berliner, W., Fabrik z. Watt, Ohlau, Schles.
Bernhardi, J., Droguen, Leipzig.
Berninghaus, Ewald, Duisburg.
Beyer, Ed., Schloss-Chemnitz.
Biermann, A., & Co., Halle a/S.
Bilinger, Dr. A., Heilbronn.
Black & Cremer, Mainz.

Chemische Fabriken.—*Fortsetzung.*

Blass, G., & Son, Broich b/Müllheim a/Ruhr.
Bloch, Heymann, & Co., Hamburg.
Böhme, Paul, Brünn.
Böhringer, C. F., & Söhne, Mannheim.
Böhringer & Geyr, Winnenden, Württemb.
Bonz & Sohn, Böblingen, Württemberg.
Borchers, Gebr., Goslar a/H.
Bornkassel, M. H., Mellenbach, Thür.
Bredt, Otto, & Co., Barmen, Rheinpr.
Brentjes, Th., Beuel b/Bonn.
Brentjes, Th., Zinkchloris, Oberhausen a/Ruhr.
Brinck & Hübner, Mannheim.
Brink-Schenzer, Uerdingen.
Bronde's Erben, Godesberg b/Bonn.
Brönner, J., Frankfurt a/M.
Brösting & Co., Bonn.
Brunner, J. C. A., München, Schwabingerlandstr. 17.
Bucherer, Heinr., Cöln a/Rh.
Bucherer, H., Benz., Talg, Naphta, Ehrenfeld b/Cöln.
Bücking, Dr., Crefeld, Oberststr. 33.
Buchner, Carl, & Co., München, Carlstr. 40.
Büdingen, F. A., Frankfurt a/M.
Buhl & Keller, Freiburg i/Br.
Buhl & Keller, Karlsruhe.
Bürger, Griep & Kumbier, Alt Damm b/Stettin.
Busch, J. H., Brackwede b/Bielefeld.
Büttner, E., aeth. und chem. Prod., Leipzig.
Charbon & Bel, Krummenweg b/Düsseld.
Chemische Fabrik, Actiengesellschaft in Hamburg, Grabow, Mecklenb.
Chem. Fabrik, Actiengesellsch. in Hamburg, Theerprod., Pasing b/München.
Chem. Fabrik, Actiengesellsch. in Hamburg, Niederau b/Dresden.
Chem. Fabr., Actiengesellsch., Papenburg a/Ems.
Chemische Fabrik Brücken, Brücken b/Birkenf.
Chemische Fabrik Buckau, Actiengesellschaft, Buckau b/Magdeburg.
Chemische Fabrik Buckau, Magdeburg.
Chemische Fabrik, Commanditgesellsch. auf Actien, Danzig.
Chemische Fabrik Cotta, Cotta b/Dresden.
Chemische Fabrik Constanz, Gebr. Bantlin, Constanz.
Chemische Fabrik Columbia, Actiengesellschaft, Mülheim a/Rh.
Chemische Fabrik Dürrenberg, J. Chr. Freygang, Dürrenberg b/Lützen.
Chemische Fabrik Einergroben, Einergroben b/Barm.
Chemische Fabrik Eisenbüttel, Actiengesellschaft, Braunschweig.
Chemische Fabrik Griesheim, Frankfurt a/M.
Chemische Fabrik Goldschmieden, Löwig & Co., Goldschmieden b/Lissa, Schl.
Chem. Fabr. Goldschmied, Loewig & Co., Morl, Stat. Trotha b/Halle a/S.
Chem. Fabrik Hermannsthal, Neumarkt i/Schles.
Chemische Fabrik Haan, Haan b/Mettm., Rhpr.
Chemische Fabrik Hochspeyer, Hochspeyer bei Kaiserslautern.

Digitized by Google

Chemische Fabriken.—*Fortsetzung.*

Chem. Fabrik, vorm. Hofmann & Schoetensack, pharmac. & techn. Präp., Ludwigshafen a/Rh.
Chemische Fabrik Rheinau, Mannheim.
Chem. Fabr. Rhenania, Oberhausen a/R., Westph.
Chemische Fabrik Rendsburg, Schwefelsäure, Rendsburg.
Chemische Fabrik Wülfel, Frz. Juch, Wülfel, Hannover.
Chemische Fabrik Uepigau-Dresden, Em. Wallgott, Dresden, Maxstr. 2.
Chemische Fabrik und Glashütte, Corbetha.
Chemische Fabrik zu Heinrichshall, Actienges. Heinrichshall, Reuss j. L.
Chem. Industrie-Verein, Stettin.
Chemische Produktenfabrik, Actien-Gesellschaft, Beuel b/Bonn.
Chemische Produktenfabrik, Frankfurt a/M.
Chem. Produkten-Fabrik, Oranienburg.
Cercs & Th. Pyrkosch, Ratibor.
Coblenzer, Fr., Spez. techn. und chem. Prod., Cöln a/Rh.
Concordia, chem. Fabr. auf Actien, Leopoldshall, Kr. Bernb.
Concordia, chem. Fabr., Stassfurt.
Courte, D. N., Devant les Ponts b/Metz.
Courtois, C., & Co., Mülhausen i/E.
Clödner, B., Gotha.
Cramer's, A., Wittwe, Nordhausen.
Cruspe, M., Altona.
Curtius, F., Angermund b/Düsseldorf.
Curtius, Fr., Duisburg, Reinpr.
Curtius, Fr. & Co., Eichelskamp b/Duisb.
Curtius, J., Duisburg, Rheinpr.
Dahl & Co., chemische Produkte etc., Barmen, Rheinpr.
D'Avis & Klein, Nieder-Ingelheim.
Dellmann, Wilh., Eschweiler.
Devrient, J. E., Zwickau, Sachsen.
Dieckmann, E., Bremen.
Diehl, C., Koskastel, i/E.
Dienemer & v. d. Steinen, Cöln a/Rh.
Dieterich, Eug., Helfenberg, Sachs.
Dollfuss, Gebr., Schloss-Chemnitz.
Dorrmann & Hottendorf, Otterndorf, Hann.
Dürre, Dr. Max, Magdeburg.
Dürre, M., Sudenburg b/Magdeb.
Dürrenbacher Hütte, Weimar.
Eberhardt, R. A., Ludwigslust, Mecklenb.
Eckert, W., & Co., Frankfurt a/M.
Edlich & Heppe, Lindenau-Leipzig.
Egener & Frey, Mainz.
Egestorff, G., Actienges., Hannover.
Eisengiesserei Strassburg i. E.
Eisenlohr, Gust., Lahr.
Eisenlohr, Loew & Kaufmann, Neudorf bei Strassburg i. E.
Elb & Pfund, Blasewitz i/Sachsen.
Elsinger, Ed., Kappel b/Chemn.
Erdmann, C., chem.-techn. Präp., Lindenau-Leipzig.
Erdmann, C., pharmac. und techn. Präp., Leipzig.
Espenschied, Dr. Rich., St. Goar.
Feldmann, Dr. A., Bremen.

Chemische Fabriken.—*Fortsetzung.*

Felten & Co., Rüsselheim.
Feustle, Fr., Zeise, Nachf., Altona.
Fickentscher, W. C., Redwitz.
Finzelberg, H., Andernach a/Rhein.
Flad & Cramer, Mockau-Leipzig.
Frank, Dr., Küpperstog b/Opladen.
Frank & Giebeler, Dillenburg.
Frankenthaler Kesselschmiede, Velthuysen u. Co., Frankenthal.
Freund, S., vorm. O. Meissner, Breslau.
Friedrichshütte, Actiengesellsch., Leopoldshall, Kr. Bernb.
Frühling, Dr. R., & Dr. J. Schultz, Laboratorium, Braunschweig.
Fuchs, Aug., Oberbruch b/Cref.
Fürstenberg, C., Oberloerik b/Neuss.
Gadomer & Jäger, Dittersbach b/Waldenburg, Pr. Schlesien.
Galle & Co., Hilbersdorf, Sachs.
Gauhe & Co., Barmen, Rheinpr.
Gaudig, C. G., Dehnitz, Reg.-Boz. Leipzig.
Gerlach, Dr. G. Th., Kalk b/Cöln.
Giersberg, Heinr. Jos. Wilh., & Sohn, Cöln a/Rh.
Giesche, Georg von, Erben, Schwefelsäure, Breslau.
Gilles, F. & Co., Aachen.
Gillmeister & Silbeth, Hamburg.
Gimborn, Heinr. von, Emmerich a/Rh.
Gleiwitzer chemische, Fabrik Dr. D. Hiller, Gleiwitz, Oberschl.
Glockner, Theod., Haynau, Schles.
Göhrich & Leuchs, Darmstadt.
Gräflich von Landsberg-Velen & Gemen'sche chemische Fabrik, Grevenbrück, Westph.
Gräflich von Landsberg-Velen & Gemen'sche chem. Fabrik, Wocklum, R.-B. Arnsberg.
Grauer, Em., Ehingen a/D., Württemb.
Gressler, N., Halle a. S.
Gross, Clemens, Frankfurt a/M.
Grun's, H., Nachfolger, Königsberg i/Pr.
Grünzweig & Hartmann, Ludwigshafen a/Rh.
Guiliné, Gebr., Ludwigshafen a/Rh.
Gunter, Schröder & Co., Harburg a/E.
Habick, G. E., Söhne, Sp. Farbenf., Cassel.
Haensel, H., Pirna.
Haen, Eugen de, Fabrik chem.-pharmac.-techn. Prod., List vor Hannover.
Haen, G. de, & Co., Hannover.
Hamann & Wisme, Lübeck.
Hänle & Co., Strassburg i/E.
Harkort'sche Bergwerke und chem. Fabrik zu Schwelm und Harkorten, Rheinpr.
Hartmann & Hauers, Hannover.
Heckmann, C., Berlin.
Heine & Co., chem. Prod., Leipzig.
Heinz, Carl, Chem. Produkte, Alt Damm b/Stettin.
Held, Ludw., Grenzhausen, Hess.-Nass.
Herberts, C. A., Barmen, Rheinpr.
Herrmann & Mummenhoff, Neusalzwerk b/Oeynhausen, Westph.
Herz, L., & Co., St. Avold, Lothr.
Hesse, G. M., Hof i/Baiern.
Hessler & Hermann, chem. Prod., Raguhn, Anh.

Digitized by Google

Chemische Fabriken.—*Fortsetzung.*

Heuer, E., pharmaz. & techn. Produkte, Cotta b/Dresden.
Heusser & Mangold, Emmendingen, Baden.
Heyl, Ph., Frankfurt a/M.
Hilgers, W., Riehl b/Cöln.
Hirzel, Hch., Plagwitz-Leipzig.
Hisgen, Hch., Rohp. f. Theerfabr., Frankfurt a/M.
Hobrecker, Friedr., Hamm, Westph.
Hochfeld, chem. Fabrik, Dortmund.
Hochfeld, chem. Fabrik, Duisburg, Rheinpr.
Hodermannd, J., Gotha.
Hoffman, P., Mannheim.
Hoffmann, Ph., Ehrenfeld b/Cöln.
Hoffmann & Lange, Greifenberg i/Schl.
Höltershoff, J. A., Lennep, Rheinpr.
Holzapfel, S. F., Mangan-Präp., Grub b/Cob.
Honigmann, F., Aachen.
Honigmann, Moritz, Grevenberg b/Aach.
Hösch, L. L., Söhne, Barmen, Rheinpr.
Hosemann, Paul, Firma: Lesser & Co., Plagwitz b/Leipzig.
Hosemann, P., Firma: Besser & Co., Riegersdorf b/Bodenbach.
Hospelt, W. E., chem. Prod., Russ, Ehrenfeld, b/Cöln.
Jäger, Carl, Stockum b/Düsseld.
Jäger, Carl, Barmen, Rheinpr.
Jäger, R., & Co., Crefeld.
Jacobs & Müller, Hagen, Westph.
Jacob, Dr. Emil, Kreuznach.
Jangläs, S. A., Frankfurt a/M.
Jannasch, Hugo, sen., Bernburg, Anhalt.
Jobst, (auch Droguen), Strassburg i/E.
Junghänel, C. F., Dresden.
Kambly, J., Uffholz b/Seuchheim i/E.
Kanngiesser, E., Frankfurt a/M.
Kaufmann, Otto, Kali, Alaun, Nieder-Sedlitz, b/Dresden.
Kayser, Phil., Barmen, Rheinpr.
Kedenburg & Blecken, Uetersen, Holst.
Kemp & Wesel, Cöln a/Rh.
Kestner, C., Mülhausen i/E.
Kestnar, Carl, & Co., Thann i/E.
Kirchmann, W., pharmac. Spezialit., Ottensen, Holstein.
Klein, L., Weinheim, Baden.
Kloss, Director, Dieuze, Lothringen.
Knab, H., & Co., Müncheberg.
Kohlert, W., Spez. Jodraffin, Braunschweig.
Kolker, Gebr., Breslau.
Kölling, A. F., Zerbst.
Kopp, Rud., & Co., Oxalsäure, Oestrich i/Rheing.
Kothe, J. M., chem. Prod., Cöln a/Rh.
Krause, Ad., Bensberg b/Müllheim a/Rh.
Krause, Gebr., Wittenberge.
Krauth Ed., & Co., Weinheim, Baden.
Krecke, Dr., & Co., Salzuflen, Lippe-Detm.
Krimmelbein, F., Harburg a/E.
Küchler, Louis, Crefeld.
Küderling, Ernst, & Quade, chem. Prod., Duisburg, Rheinpr.
Kuhnen, M. Jos., Elberfeld.
Kulmiz, C., Saarau.

Chemische Fabriken.—*Fortsetzung.*

Kurtius, F., & Co., Duisburg, Rheinpr.
Kyll, F., Döbeln.
Landsberg-Vellenche'sche, Gräflich von, ehem. Fabrik, Balve i/Westphalen.
Langerfeld, Gebr., Crefeld.
Lauböck, H., Frankfurt a/M.
Lehning, Christ., Elberfeld.
Lentz, E. A., Berlin.
Leonhardt, A., Mülheim b/Frankf. a/M.
Leonhardt, C., & Co., chem.-techn. Produkte, Düsseldorf.
Lerche, C. H., Wwe., Bremen.
Leupold, B., Arnstadt, Sondershausen.
Leye, Joh. Christ., & Co., Bochum, Westph.
Leymann, Ed., Barmen, Rheinpr.
Lichtenberger, Gebr., Heilbronn.
Liebermeister, Dr., Unna.
Linden, F. A. C. von der, Hamburg.
Linde, H. W. v. d., Crefeld.
Lindemann & Co., Stassfurt.
Lion, F., Huningen i/E.
Lithopone- & Permanent-Weissfabr. Schöningen, Actiengesellsch., Schöningen, Braunschw.
Lix, L. E., Bischweiler i/E.
Loewig & Co., Dresden.
Löfflund, Stuttgart.
Lüders & Sandkaul, Neustadt-Dresden.
Ludwig & Ostermaier, München-Schwabing, Riesenfelderstr.
Lüttgen, Aug., Stammheimerhäuschen, b/Mülheim a/Rh.
Lüttgen, Joh., Barmen, Rheinpr.
Lux, Fr., Gasreinigungsmasse, Ludwigsh. a. R.
Mandawsky, L., Breslau.
Mann & Co., Breslau.
Mannheimer Dampfkesselfabr., Andreae u. Co., Mannheim.
Mannheimer Eisengiesserei, Carl Elsässer, Mannheim.
Märk.-Westphäl. Bergwerks-Verein, Schwefelsäure, Lotmathe.
Marquart, Dr., Bettenhausen b/Cassel.
Marquart, Dr. L. C., Bonn.
Marx, Louis, Zahlbach b/Mainz.
Maschinenfabrik der vereinigten Hamburg-Magdeburger Dampfschifffahrts-Compagnie, Magdeburg.
Menkels & Vogel, Bremerhaven.
Mer, Dr. E. ter, & Co., Uerdingen.
Merck, Em., Darmstadt.
Mergler, Gg., Hachenburg.
Messerschmidt, L. H., Harburg a. d. Elbe.
Mettenheimer, H., Frankfurt a/M.
Metzner & Otto, Lindenau-Leipzig.
Michel, Alf., Eilenburg, Sachs.
Moebius, Hermann, Dresden.
Monheim, J. P. H., Aachen.
Müller, Adam, Strassburg i/E.
Müller, Carl, Marktsteft a/M., Unterfr.
Müller, Dr. H., Artern, Reg.-Bez. Merseburg.
Müller-Küchler, C., Crefeld.
Müller, M., & Söhne, Düsseldorf.
Müller, Packard & Co., Wetzlar.

Digitized by Google

Chemische Fabriken.—*Fortsetzung.*

Munding, C., Frankfurt a/M.
Münzing & Co., Heilbronn.
Natusch & Loewig, Dresden.
Naurney & Co., Barmen, Rheinpr.
Nenzel, Georg, Giessen.
Nessebrath, Ludwig, Crefeld.
Netz, Carl, Jena.
Ney, Peter, Spez. Pottasche, Aachen.
Nienburger chem. Fabrik, chem. Prod., Nienburg a/W., Hannover.
Nieske, Alw., chem.-techn. Präp., Dresden.
Nöllner, W. Er., Darmstadt.
Nouprez, Malmedy, Rheinpr.
Oberdörffer & Zinkeisen, Hamb.-St. Georg.
Oehme, Ed., Kieritzsch, Sachs.
Ohlendorg & Co., Emmerich a/Rh.
Ohlgart, W., & Co., Kehl, Baden.
Oppler, Th., & Co., Doos b/Nürnb.
Oppenheim, J., Bockenheim b/Frankfurt a/M.
Oppermann, Dr. A., Bernburg, Anhalt.
Ostermann, Fr. Wm., Barmen, Rheinpr.
Pahl, L., Frohse b/Schönebeck, Sachs.-Anh.
Pahl, L., Magdeburg.
Pallenberg, Jos., Mannheim.
Panzer, Fr., chem. Laboratorium, Bamberg.
Pauli, Dr. P., Ziegelhausen.
Paster, Ludwig, Frankfurt a/M.
Peltzer, Eugen, Crefeld.
Perutz, O., München, St. Annastr. 12.
Petzold, B., & Co., Dresden.
Pfannenschmidt & Mehner, Danzig.
Pfarrius & Co., Kreuznach.
Pfeiffer, Dr. Herm., Freiburg i/Br.
Piedboeuf, Jacques, Aachen.
Pietsch, L. H., & Co., Breslau.
Pilger, St. Amarin, Elsass.
Plaskuda, Dr. H., Spez chem.-anal. Laborat. Cöln a/Rh.
Pommier, Ed., Neuschönfeld b/Leipzig.
Pregardien, Jos., Deutz.
Preuss & Dressler, Hannover.
Prückner, Chr., Hof i/Baiern.
Pruggmayer, Gust., Gössnitz, Sachs.-Altenb.
Rath & Co., Pletenberg, Westph.
Raub, Ferd., Hamm, Westph.
Reatz, W., Firma W. F. Nöllner, Darmstadt.
Reichard, C., Döhlen b/Dresd.
Rhein. Asphalt- & Kohlentheerprodukten-Fabrik, B. Zimmermann, Mülheim a/Rh.
Rhein. Farben- und Chemikalienfab., L. Simson, Cöln a/Rh.
Rhenania, Aktiengesellschaft, Aachen.
Rhodius, Gust., Linz a/Rh.
Ritel, Dr. Jul., chem. und chem.-techn. Präparate, Cölln a/E., Sachsen.
Röhr, Gustav, Caldenhausen b/Uerdingen.
Rosenkilde, J. G., Altona.
Rubach, Gebr., Fischeln b/Cref.
Rüggeberg, C. A., Neheim a/Ruhr.
Rüggenberg, C. & Co., Schwelm.
Ruscher, F., Crefeld.
Sauerbrey, G., Stassfurt.
Schaaf & Lauthe, Wasselnheim i/E.

Chemische Fabriken.—*Fortsetzung.*

Schaal, Franz, Dresden.
Schaeffer, Rudolf, Deidesheim.
Schallehne, Gust., Magdeburg.
Scharffenroth, Af., Memel, Ostpr.
Schelenz, H. E., Rendsburg.
Schell, W., St. Andreasberg i/H.
Scheller, Ferd., Hildburghausen.
Scheib, Jean, Cöln a/Rh.
Scheidehauer, Alex., chem. Präp., Thum.
Scheidemandel, H., Landshut.
Schlampe, R., & Jung, Nierstein a/Rh.
Schleussner, C. Frankfurt a/M.
Schlobach & Schmidt, Theer, Neuhammer b/Rauscha.
Schmalbein, Friedr., Cöln a/Rh.
Schmidt, Amelius, Schweinfurt.
Schmidtborn, Karlsruhe.
Schmidtborn & Co., Bockenheim b/Frankfurt a/M.
Schmidt, C. W., Düsseldorf.
Schmidt & Stadte, Frankenstein, Schles.
Schmidt & Stade, Breslau.
Schmidt, W. C., Ehrenfeld b/Cöln.
Schneider, Dr. W., & Otto Schneider, Lehrberg,
Schmoll & Co., Cöln a/Rh.
Schöneberg & Hufschmidt, Elberfeld.
Schönfeld, R., & Co., Hamburg.
Schran, Franz, Gleidorf b/Meschede, Wesph.
Schrimpf, Ernst, Iserlohn.
b/Ansbach.
Schrimpf & Schultgen, Iserlohn.
Schuchart, Dr., Görlitz.
Schuller & Wieselhuber, München, Kleuzestr. 12.
Schumacher, Ferd., & Co., Potsdam.
Schürmann, Joh. Wilh., Barmen, Rheinpr.
Schuster & Wilhelmy, Görlitz.
Schütte, W., photogr. Chemikal., Cöln a/Rh.
Schütz & Hertel, Wurzen.
Sebald, A., Hameln a/W.
Siebel, Fdr. & Co., Barmen, Rheinpr.
Siebel, Otto, Spez. Salpeter-Raffin., Brühlhof, Kr. Altenkirchen a/Wied.
Siegfried, Dr. B., Herborn b/Wiesb.
Silesia, Verein chem. Fabriken, Breslau.
Silesia, Verein chem. Fabr., Ida- & Marienhütte b/Sarau, Schles.
Silesia, Verein chem. Fabriken, Merzdorf, Kr. Bolkenh., Pr. Schles.
Silesia, Verein chem. Fabrik., Saarau a/Breslau-Freiburger Bahn.
Simeons, Wilh., Galatine, Höchst a/M.
Sommer, D., & Co., Call a/Eifel.
Spiess, J., Theerprod., Pasing b/München.
Spiritus, L., Wipperfürth, Rheinpr.
Stackmann & Retschy, Lehrte, Hannover.
Starcke, Otto, & Co., Leipzig.
Steinmetz, Ueberrach b/Reichsh. i/E.
Stolzenberg & Uffhausen, Altona.
Streicher, St., chem. Prod., Pasing b/München.
Streit, G., Görlitz.
Stuhr & Lorenzen, Friedrichstadt a/Eider.
Tärl & Heydmann, Harburg a/E.
Thann, fabrique de produits chemiques de Thann, Mülhausen i/E.

Digitized by Google

Chemische Fabriken.—*Fortsetzung.*

Theunert & Gechter, chem. Prod., Chemnitz i/S.
Thiemer, Ferd., Deuben b/Dresden.
Toenges, Gebr., Elberfeld.
Traine & Hellmers, Salpeterf., Cöln a/Rh.
Uhlemann & Koch, Altenburg in Sachsen-Altenburg.
Ulbricht & Kaders, photogr. Chem., Dresden.
Unger, Herm., Mockau-Leipzig.
Union, chem. Produktenfabrik, Stettin.
Ver. chem. Fabrik. zu Mannheim, Mannheim.
Verein f. chem. Industrie, Oeventrop b/Arnsberg, Westph.
Verein für chem. Industrie, Laufach, Unterfr.
Verein chem. Fabriken, Leopoldshall, Kr. Bernb.
Verein für chem. Industrie, Lorch, Nassau.
Verein chem. Fabr. in Mannheim, Louisenth., R.-B. Trier.
Verein f. chem. Industrie, Mainz.
Verein f. chem. Industrie in Mainz, Frankfurt a/M.
Victoriahütte, Actiengesellsch., Naumburg a/B., Schlesien.
Visser, Gebr., Textrinf., Cöln a/Rh.
Vorberg & Co., Barmen, Rheinpr.
Vorster & Grüneberg, Kalk b/Cöln.
Vorster & Grüneberg, Cöln a/Rh.
Vossen, L., & Co., Neuss, Rheinpr.
Wachhausen, Dr., & Wilken's Fabr. chem. Prod., Wallersheim-Coblenz.
Wachs, Fr., Elberfeld.
Wagner, Louis, Deutz a/Rh.
Walther, N., Nideggen, Rheinpr.
Walter & Schumann, Hecklingen, Anh.
Wasserfuhr, A., & Co., Cöln a/Rh.
Weber, J. G., Querfort, Sachsen.
Weber, K. J., chem.-techn. Art., Duderstadt, Hannover.
Werner, H., & Co., Zittau, Sachsen.
Weiler, J. W., & Co., Cöln a/Rh.
Weiss, J., & Co., Baryt-Salz, Mühlhausen i/Th.
Wesenfeld & Co., Barmen, Rheinpr.
Wich, Fr., Nürnberg.
Wich, Ph., Altenburg b/Westerhamm, Oberbaiern.
Wiederhold, Dr. E., Cassel.
Wilden, P., Ehrenfeld b/Cöln.
Wildenstein, Friedr. & Co., Aachen.
Wilhelmi, Dr. F., Reudnitz-Leipzig.
Wilhelmsburger chemische Fabrik, Hamburg.
Willmer, Dr. H., Landshut.
Wimmel, Dr. Th., Hamburg.
Wirtz, Theod., Cöln, a/Rh.
Wirz, Dr. Carl, Bingen.
Witte, Friedr., Rostock i/M.
Wizemann, Joh., chem. Prod., Stuttgart.
Wolfrum, F., chem.-pharmaz. Laboratorium, Augsburg.
Wüstenhagen & Co., Stassfurt.
Zech, H., München, Staubstr. 1½.
Zeller, Gebr., Oberbrück b/Maasmünster, Elsass.
Ziegler, C., Frankfurt a/M.
Ziegler, Dr. C., Frankfurt a/M.
Zimmermann, chem. Fabr. für Leimp., Ludwigshafen a/Rh.
Zimmer & Co., Börnecke, Sachsen.

Dampfmaschinen.

E.—Engine Makers—Steam.
F.—Machines à Vapeur (Fab. de).

Arnheim, A. L., Sohn, Berlin.
Aron & Gollnow, Stettin.
Berlich & Co., Berlin.
Borsig, A., Berlin.
Briegleb, Hansen & Co., Gotha.
Brodnitz & Seydel, Berlin.
Cölner Maschinenf., Carl Beissel & Co. Ehrenfeld.
Dippe, F., Schladen.
Earnshaw, J. Edw., & Co., Nürnberg.
Emmericher Maschinenfabrik & Eisengiesserei, van Gülpen, Lensing & von Gimborn, Emmerich a. Rh.
Filler, Friedr., Eimsbüttel-Hamburg.
Foerster, Ernst, & Co., Neustadt-Magdeburg.
Haeberlein, Georg, Nürnberg.
Harzer Actien-Gesellschaft für Eisenbahnbedarf, vormals Thelan & Weydemeyer, Nordhausen a. H.
Kölnische Maschinenbau-Actien-Gesellschaft, Bayenthal.
Kunz, J., & Co., Neustadt-Magdeburg.
Kyll, P., Bayenthal-Cöln.
Lang, L., Budapest.
Laubek, Franz, Wien.
Lehmann & Bauer, Guben.
Maass, Gebr., Neustrelitz.
Maschinenbau-Actien-Gesellsch., vorm. Klett & Co., Nürnberg.
Maschinenfabrik, Augsburg.
Maschinenfabrik "Cyclop", Berlin.
Maschinenfabrik der k. ungar. Staats-Eisenbahnen, Budapest.
Maurer, Bernh., Stralsund.
Meissner Eisengiesserei & Maschinenbau-Anstalt, Meissen.
Merkel, C. C., Chemnitz.
Messerschmidt, L. H., Harburg a. Elbe.
Moegelin, J , Posen.
Moltrecht, H., & Co., Hamburg.
Prager Maschinenbau-Actien-Gesellsch., vorm. Ruston & Co., Prag.
Reuter, F. A. L., Hamburg.
Riedinger, L. A., Augsburg.
Robey & Co., Breslau.
Rockstroh, H., Markt-Redwitz.
Rose, H., Wetzlar.
Rost, C. E., & Co., Dresden.
Ruffer, G. H. v., Breslau.
Scharrer & Gross, Nürnberg.
Schimmelbusch, M., Wien.
Schmaltz, Gebr., Offenbach a. M.
Schröder, A. Th., Cöln.
Schweizerische Locomotiv- & Maschinenfabrik, Winterthur.
Sudenburger Maschinenfabrik & Eisengiesserei, Act.-Ges., Magdeburg.
Voigt & Biringer, Darmstadt.
Weise & Monski, Halle, a. d. S.
Wolf, R., Buckhau-Magdeburg.
Zwickauer Maschinenfabrik, vorm. Brod. & Stiehler, Zwickau

Digitized by Google

Dampfkessel.

E.—Steam Boilers.
F.—Chaudières.

Actien-Gesellschaft der Holler'schen Carlshütte bei Rendsburg.
Arnheim A. L., Sohn, Berlin.
Behne & Hertz, Harburg a. d. Elbe.
Borsig, A., Berlin.
Callm, O., Halle a. S.
Dampf- & Spinnerei-Maschinenfabrik, vorm. Th. Wiede, Chemnitz.
Dupuis, D., & Co., M.-Gladbach.
Empson, J., & Co., Hamburg.
Escher, Wyss & Co., Zürich.
Gährich, H., Berlin.
Gaul & Hoffmann, Frankfurt a. O.
Göhrig & Leuchs, Darmstadt.
Hampel, Joh,. Dresden.
Hasemann, C., Berlin.
Höcker, Gebr., Budapest.
Hoffmann, Gg., Neustadt-Magdeburg.
Howaldt, Gebr., Kiel.
Hüttenberger Eisenwerks-Gesellschaft, Klagenfurt.
Kirschstein, A., Berlin.
Koeber, G., Harburg a. d. Elbe.
Lange, Carl W., Essen a. d. Ruhr.
Leobersdorfer Maschinenfabr. & Eisengiess., J., Neumann, Leobersdorf.
Luhn, Gebr., Haspe.
Maschinenbau-Gesellschaft, Carlsruhe.
Moltrecht, H., & Co., Hamburg.
Neumann, Koch & Stiennon, Sieghütte.
Paulensteiner Kupferhämmer & Walzwerke, Paulenstein.
Petry-Dereux, Düren.
Pilsener Maschinen- und Waggonbau-Actien-Gesellschaft, Pilsen.
Prager Maschinenbau-Actien-Gesellsch., vorm. Ruston & Co., Prag.
Rack, A., & Co., Wien.
Rossdeutscher, F., Breslau.
Rost, C. E., & Co., Dresden.
Rodberg, A., Darmstadt.
Schenk, Joh., Messendorf.
Schmidt, E., Zell.
Schumann, G., Zeitz.
Speyerer & Co., Berlin, Friedrichstr. 62.
Stettiner Maschinenbau-Anstalt und Schiffsbauwerft-Actien-Gesellschaft, vorm. Möller u. Holberg, Stettin.
Stoltzenberg, H., Berlin.
Strecker, A., Söhne, Mannheim.
Teichert & Gubisch, Liegnitz.
Ulbricht, Herm., Chemnitz.
Union-Giesserei, Königsberg i. Pr.
Verwaltung der Fürst-Erzb. Berg- & Hüttenwerke, Friedland.
Veith & Co., Osnabrück.
Wagner & Eisenmann, Cannstatt.
Walther & Co., Kalk.
Weigel, F., Neisse-Friedrichstadt.
Weinbrenner, Carl, Neunkirchen.

Dampfkessel.—*Fortsetzung.*

Wick-Spoerlein, Mülhausen i. E.
Wiesche & Scharffe, Frankfurt a. M.
Wilhelmshütte, Actien-Gesellschaft für Maschinenbau und Eisengiess., Eulau-Wilhelmshütte.
Willich, W., Hörde.
Wischer, B., Stargard.
Wöhlert'sche Maschinenbau-Anstalt & Eisengiess., Act.-Gesellsch., Berlin.
Wolf, R., Buckau-Magdeburg.
Wolff, Gebr., Erfurt.
Wuth & Diederich, Halle a. S.
Zum Brunnen, Fratelli, Triest.

Dampf- u. Heizungs-Anlagen.

E.—Steam and Hot-Air Installations.
F.—Installations de vapeur et calorique.

Ahrends, C. H. G., Hamburg.
Aleiter, Mich., sen., Mainz.
Bartels, C., Potsdam
Bartelt, C., Frankfurt a. M.
Bopp & Reuther, Mannheim.
Breslauer Eisen- & Metallgiess., Breslau.
Eisenwerk, Kaiserslautern.
Haag, Joh., Augsburg.
Heckmann, C., Berlin.
Heckmann & Zehender, Mainz.
Hentschel, Jos., Wien.
Holdorff & Brückner, Wien.
Klose & Co., Görlitz.
Kölnische Maschinenbau-Actien-Ges., Bayenthal
Kürten, H. C., Aachen.
Mack, J. F., Frankfurt a. M.
Mauch, Rich., Wien.
Müllers & Co., Ehrenfeld-Cöln.
Petzholdt, J. S., Döhlen.
Pfauter, C. J., Wien.
Reimherr & Co., Stuttgart.
Reinhardt, J. H., Würzburg.
Remy & Reifenrath, Herborn.
Rettig & Grobbin, Potsdam.
Schuldt, W. A. H., Altona.
Schur & Co., München.
Schweizer Industrie-Ges., Neuhausen.
Sonntag-Mathebs, Thann i. E.
Stoeckert C. F., & Co., Landsberg a. d. W.
Sugg, Kaiser & Co., München.
Triebel, Wilh., Berlin.
Ullrich, C. F., Zwickau.
Voigt & Co., Schwerin.

Draht-Fabriken.

E.—Wire Drawers.
F.—Tréfileurs.

Aachener Hütten-Actien-Verein, Rothe Erde b/Aachen.
Actiengesellsch. f. Drahtfabr., Eschweiler b/Aach.
Adrian, Fr., Berlin, SW., Alexandrinenstr. 25.
Ardey, Fr., Altona i/Westph.
Asten, v. & Lynen, Stolberg b/Aachen.

Digitized by Google

Draht-Fabriken.—*Fortsetzung.*

Auffermann, J., Barmen.
Aurnhammer, A., Treuchtlingen.
Bader, Wilh., Pulsnitz i/S.
Basse & Selve, Altena i/Westph.
Becker & Co., Johannisthal b/Iserl.
Becke, H. von der, Dicken b/Iserl.
Becke, von der, & Co., Hemer, Westph.
Beckert, C., Ulm.
Beling, B., Söhne, Eisen, Hellenthal b/Kirchseiffen, Westph.
Berberich, F., Hanau a/M.
Borgbau- & Hütten-Actiengesellschaft, Altenkunden a/Lenne.
Berger, J. U., & Sohn, Schwabach, Baiern.
Berg, Carl, Eveking b/Werdohl i/W.
Bernirighaus, C., Elberfeld.
Boecker, Fr., & Sohn, Hohenlimburg.
Boecker & Haver, Hohenlimburg.
Boecker & Co., Schalke, Westph.
Boessner, F., Augustenthal b/Neuw.
Böhmes, Aug., Liegnitz, Schles.
Class, J. A., Altena i/Westph.
Desmessieurs, F. A., Friedrichsthal b/Plettenb.
Dinke, C. F., Ringlstein b/Büren i/W.
Dösseler & Co., Werdohl, Westph.
Drahtwaaren-Fabrik Falkau, Falkau, Baden.
Draht- & Schrauben-Fabrik, Falkau, Baden.
Dreher & Sohn, Gerresheim b/Düsseld.
Dresler, H. A., Siegen.
Dressler, H. A., & W., Creuzthal b/Siegen.
Dr. Geitner's Argenentanfabrik, Auerhammer b/Aue, Sachsen.
Düsseldorfer Eisen- & Draht-Industrie, Düsseldorf-Oberbilk.
Eisen- und Drahtwerk Erlau b/A., Erlau b/Aalen.
Engler, J., Bornheim.
Engster, J., Augsburg.
Fauler, P. H., Freiburg, Baden.
Feckes, J. umsponn. Draht, Anrath b/Cref.
Felten & Guilleaume, Cöln.
Fischer, Gebr., Evingsen b/Altena.
Franck & Co., Schlettstadt i/E.
Geck, Gebr., Rahmede b/Altena.
Gilardi, Jac., Allersberg b/Roth a/Sand.
Goswin, Heinr., Ihmert b/Iserlohn.
Grieshaber, Gebr., Triberg, Baden.
Guttenberg, v. & zu, Lauf, Baiern.
Heckel, G., St. Johann-Saarbrücken.
Hecker, Chr. Gottl., Leipzig.
Hesse, F. A., Söhne, Heddernheim bei Frankfurt a/M.
Hirsch, A., & Co., Cassel.
Holdhaus, W., Altemühle b/Werdohl.
Hühnerkapf, J., Telegr., Erlangen.
Hühnerkopf, G., jr., Erlangen.
Kaiser, J. G., Unterkochen, Württemb.
Katerlöh & Niggeliet, Plettenberg i/W.
Kern, H., & Co., Gleiwitz, Schles.
Kissing & Möllmann, Menden.
Kleinholz, Herm., Oberhausen.
Klinke, Fr., Söhne, Altena i/Westph.
Kock, C. J., Bergwerkdraht, Hohenlimburg.
Krämer, Gebr., St. Ingbert, Pfalz.
Krieger & Co., Pforzheim.

Draht-Fabriken.—*Fortsetzung.*

Kufferath, A., Mariaweiler b/Dürren.
Kuhlmann, Grüne b/Iserl.
Kuhn, E., versilb. Drähte, Nürnberg.
Leuchtenberg, N., Duisburg.
Messing-Gewerkschaft, Oese b/Iserl.
Neue Berliner Messingwerke, Berlin, SW., Kochstr. 30.
Neufeld, C. L., Dortmund.
Noell, Casp., Vogelberg b/Lüdensch.
Noell & Co., Messingw., Lüdenscheid.
Obermaier, J., Nürnberg, Untere Baustr. 20.
Obermaier, J., Telegraphendraht, Nürnberg.
Pauly-Stahel, G., & Co., Mengen bei Würzburg.
Reinhard, G., Schwelm.
Reinhardt, C., Schmalkalden, Thür.
Reuter, A., Lössnitz i/S.
Rhein. Walzwerk, E. Böcking & Co., Mülheim a/R.
Risse & Schöneberg, umsponn. Drähte, Iserlohn.
Roffländer, C. D., Stephanopel b/Heuer.
Rohr, G., Caldenhausen b/Uerdingen.
Roth, Heck & Schwinn, Ixheim b/Zweibr.
Sasserath, F. A., Berlin, SO., Schmidtstr. 37.
Schacherer, C., Telegraphen, Mannheim.
Schacherer, Carl, Mannheim.
Schleicher & Sohn, Aachen.
Schleip, Gebr., Kusel, Rheinpf.
Schleith, Gebr., & Co., Wisleth, Baden.
Schmidt, Gust., & Sohn, Einsal b/Altena.
Schmidt, W., Elverlingsen b/Werdohl.
Schönemann, F., München.
Schumann & Zersch, Salzwedel.
Selter, Ludw., Eisendraht, Altena i/Westph.
Simon, A., Aalen, Württemb.
Sirringhaus, G., Menden.
Söhngen & Bolenius, Bruch b/Schwelm.
Spatz, Wwe., Hausimfelde b/Halle a/S.
Spelsberg & Klinke, Rathmecke b/Lütenscheid.
Stahel, Pauly, Mengen, Württemb.
Stoinhauser Draht-Industrie, Bommern b/Witten.
Stieber, Joh. F., Roth b/Nürnb.
Trurnit, Gebr., Karlswerth b/Menden.
Ukana, Theod., Papenburg, Hanau.
Voss, Seisenschmidt & Schröder, Plettenberg i/W.
Wälzholz, C. D., Hohenlimburg.
Westphälischer Draht-Industrie-Verein, Hamm i/Westph.
Westphälische Union, Hamm i/Westph.
Westph. Union, Actiengesellsch., Bellecke.
Westph. Union, Actiengesellsch., Lippstadt.
Westph. Union, Actiengesellsch., Nachrodt.
Wieland & Co., Ulm.
Wild, Arn., Gemünd, Rheinpr.
Wilke, H. D., Letmathe.
Wolfart, G., Ammendingen b/Memmingen.
Wolff, Gebr., Neheim a/Rh.
Witte & Kämper, Osnabrück.

Drahtseile, Kabel, etc.

E.—Cable and Wire Rope Manufacturers
F.—Câbles et Fils télégraphiques (Fab. de).

Bellmann, Berlin, Sophienstr. 17.
Bubman, W., & C. Hirschman, Wasserstrüdingen.

Digitized by Google

Drahtseile, Kabel, etc.—*Fortsetzung.*

Felten & Guilleaume, Cöln.
Hesse, F. A., Söhne, Hedernheim.
Kössel, Otto, & Sohn, Hannover.
Neue Berliner Messingwerke, Berlin, Kochstr. 30.
Oberwarth, Berlin, Zimmerstr. 33.
Pauly, G., & Co., Mengen, Württemberg.
Schwartz, Ad., & Co., Berlin, Kochstr. 73.
Sorge & Schma, Berlin, Greifswalderstr. 22.
SPEISER, CARL, NÜRNBERG.
Westphälische Union-Werke, Hamm.

Drahtstiften-, Nägel- und Nietenfabrikation.

E.—Wire Nails and Rivet Manufacturers.
F.—Clous de fils et rivets.

Becke, Adolf von der, Sundwig.
Behling, B., Söhne, Hellenthal.
Beylen, Jacob, Cöln a. Rh.
Büsch, Alb., Rodenkirchen.
Dubigk-Offergeld, Aachen.
Geyer, Robert, Chemnitz.
Hammerwerkstätte, Nettehammer.
Hasenclever, C. W., Söhne, Düsseldorf.
Hoffnungshütte, Ratiborhammer.
Hollandt, C. L., Steinbach-Hallenberg.
Jachmann, O., Berlin.
Malmedie & Schmitz, Düsseldorf-Oberbilk.
Meyer, Roth & Pastor, Cöln a. Rh.
Moos, Gebr. von, & Co., Luzern.
Peitsch, J., Dortmund & Berlin.
Qurin Gebr., Kirchberg a. Wechsel.
Schmerber, Gebr., Tagolsheim.
Schnutz, Fr. W., Müssnershütten.
Seydelmann, L., Aalen.

Draht- u. Drahtwaarenfabrikation.

E.—Wire and Wire Goods Manufacturers.
F.—Fils et trèfilerie (Fab. de).

Argo, Adolf, Schloss-Chemnitz.
Becke, Adolf von der, Sundwig.
Bernhardt, Godfr., Gauzendorf-Wien.
Leobersdorfer Maschinenfabrik & Eiseng., J. Neumann, Leobersdorf.
Malmedie & Schmitz, Düsseldorf-Oberbilk.
Mandelartz, Frz., Eschweiler.
Miller, M., St. Egidy.
Neuberg-Mariazeller Gewerkschaft, Wien.
Purin, Gebr., Kirchberg a. Wechsel.
Räuber, F., Elbing.
Spaeth, Joh. Wilh., Dutzendteich.
Voigt, L., Iserlohn.

Dynamo-Maschinen.

E.—Dynamo-Machine Manufacturers.
F.—Machines Dynamo Electriques (Fab. de).

Edelmann, Dr. M. Th., München.
Einstein, J., & Co., München.
Fein, C. & E., Stuttgart.
Fraas, Joh., München.
Neumann, Schwarz & Weil, Freiburg i/Baden.
Schuckert, Sigmund, Nürnberg.
Schwerd, C. & E., Karlsruhe.
Siemens & Halscke, Berlin.

Eisenbahnbau-Unternehmer.

E.—Railway Contractors.
F.—Chemins de fer (Entrepreneurs de).

Bachstein, Berlin, Grossbeerenstr. 89.
Davy, Donat & Co., Berlin, v. d. Heydtstr. 4.
Görding & Birnbaum, Berlin, Lützowstr. 85.
Hornemann & Co., Berlin, Greifswalderstr. 8.
Marcks & Balke, Berlin, Hornstr. 3.

Elektro-Techniker.

E.—Electricians.
F.—Electriciens.

Aron, Dr., Berlin.
Bähr, Hugo, Dresden.
Brunn, Otto, Dresden.
Eckart, Gebr., & Heinrich Rabe, Hanau.
Ehrenberg, W. von, Zürich.
Frischen, J., Berlin, SW., Gitschinerstr. 107.
Frischen, C., Berlin, SW., Gitschinerstr. 107.
Hausmann, Johann, Mühlheim a/Rh.
Hummel, Georg, Moosburg, Oberbayern.
Metzger, Alt-Breisach i/Br.
Miller, Oscar von, München.
Nippoldt, Dr. W. A., Frankfurt a/M.
Scharnweber, Ludwig, Karlsruhe i/B.
Scheuren, Dr., Kiel.
Schöneich, Carl, Kattowitz, O/Schl.
Siemens, Arnold, Berlin, SW., Markgrafenstr. 94.
Siemens, Wilhelm, Berlin, SW., Markgrafenstr. 94.
Siemens, Dr. Werner, Berlin, SW., Markgrafenstr. 94.
Slaby, Dr., Berlin, C., Gertraudtenstr. 25.
Siemsen, Rudolf, Hannover.
Uppenborn, F., Nürnberg.
Zetzsche, Dr., Berlin, N., Weissenburgerstr. 66.

Electrische Agenturen.

E.—Electrical Agencies.
F.—Agences électriques.

MENDEL, BERTHOLD, BERLIN, LÜTZOWSTR. 84.

Electrische Apparate.

E.—Electrical Apparatus Makers.
F.—Appareils électriques (Fab. d').

Aleiter, Mart., Mainz.
Bischof, Berlin, Oranienburgerstr. 75.
Böhm & Wiedemann, München.
Bornhardt, A., Braunschweig.
Dold, Ch., Luxemburg.
Eck, Wilhelm, Berlin, Wilhelmstr. 121.
Findeisen, Th., Berlin, Jägerstr. 75/76.
Geiss, Ch., Bockenheim.
Hagedorn, Berlin, Ritterstr. 75.
Hening, Berlin, Gartenstr, 58.
Krüger, Berlin, Simeonstr. 20.
Kunzemann, Berlin, Oranienstr. 23.
Lotter, J., Frankfurt a/M.
Meer, Gebr., M.-Gladbach.
Oettel, Berlin, Schmidstr. 31.

Digitized by Google

Electrische Apparate.—*Fortsetzung.*

Peschel, Berlin, Müllerstr. 3a.
Queva, Berlin, Breslauerstr. 3a.
Reinhardt, C. F. & W., Berlin, Rosenstr. 29.
Reutlingen, B. C., Frankfurt a/M.
Rosenthal, Berlin, Chausseestr. 113.
Schlag & Behrend, Berlin, Alexanderstr. 70.
Sokolt, Gebr., Berlin, Plantufer 3.
Stern, L., Essen a/R.
Trempler, Berlin, Mariannenstr. 35.
Voss, Berlin, Pallisadenstr. 20.
Weill, Gebr., Frankfurt a/M.
Wilk, Aug., Darmstadt.
Zehle, Berlin, Scalitzerstr. 46.

Electrische Batterien.

E.—Electric Battery Makers.
F.—Piles électriques (Fab. de).

Baudach, Herrm., Bunzlau.
Ernst, C. F., Stettin.
Greb, W. & Co., Frankfurt a M.
Haertelt, H., Liegnitz i/Schl.
Hagen, W. von, Frankfurt a/M.
Raschke, H. F. J., & Co., Stettin.
Zander & Hoff, Frankfurt a/M.

Electrische Beleuchtung.

E.—Electric Lighting Contractors.
F.—Eclairage électrique (Entrepreneurs pour).

Baehr, Hugo, Dresden.
Bau, Berlin, Hasenhaide 36.
Boeddinghaus, Jul., Düsseldorf.
Böttner, Aug., Zwickau.
Campbell, Wm., & Co., Hamburg, Neuerwall 50.
Elsässiche Electricitäts-Gesellschaft, Strassburg.
Felten & Guilleaume, Cöln.
Greiner & Friedrichs, Stützenbach.
Hagedorn, Berlin, Ritterstr. 75.
Hartz, P. F. A., Hamburg, alte Börse 8.
Heller, Fried., Underberg.
Hennig, Berlin, Gartenstr. 58.
Hennig, O., Berlin, Invalidenstr. 127.
Horn, Berlin, Hollmanstr. 35.
Huber, J. L., Hamburg.
Kummer, O. L., & Co., Dresd., Waisenhausstr. 27.
Mayr, Joseph, München.
Mendel, Berthold, Berlin, Lützowstr. 84.
Müller, C. H. F., Hamburg.
Müller, C. H. H., Hamburg, Sonnenstr. 23.
Schönemann, F., München, Utzschneiderstr. 7.
Schuch & Wiegel, Berlin, Franzstr. 9.
Schulz, Berlin, Georgenkirchstr. 48.
Schwerd, L. E., Karlsruhe.
Seeligmann, E., Karlsruhe.
Siemens, Glashütten, Dresden.
Siemens & Halscke, Berlin.
Tenner, Armin, Berlin, SW., Zimmerstr. 34.
Trempler, Berlin, Mariannenstr 35.
Uppenborn, F., jr., Hannover.
Wehr, Berlin, Ritterstr. 49.
Willmann, C., Hamburg, hohe Bleichen 5.
Wörtmann & Fröhlich, Düsseldorf.

Electro-medicinische Apparate.

E.—Electro-Medical Apparatus Makers.
F.—Appareils electro-médicales (Fab. d').

Armbruster, L., Ebingen i/W.
Beyhl, Adolph, & Sohn, München.
Bornkessel, F. G., Mellenbach, Thür.
Bühler, Edm., Tübingen.
Edelmann, Dr. M. Th., München.
Graseck, A., & Släter, Frankfurt a/M., Eckenheimer Landstr. 91.
Hugersdorf, Franz, Leipzig.
Huss, J. W., Bernburg.
Katsch, Hermann, München.
Korner, J., München.
Leibold's, E., Nachf., Cöln.
Michael, Dr., Hamburg.
Staudt, Emil, Frankfurt a/M.
Stein, Dr. Sigm. Th., Frankfurt a/M.
Ziemssen, Dr. von, München.

Erd-Arbeiten—Unternehmer.

E.— Contractors for Earth-working.
F.—

Below, Berlin, Grimstr. 34/35.
Eckelman, Berlin, Zionskirchplatz 13.
Schulze, Berlin, Bernauerstr. 100.

Etuisfabriken.

E.—Case and Box Makers.
F.—Boîtes pour usines électriques (Fab. de).

Anderson, Berlin, Sebastianstr. 6.
Findeisen, Berlin, Kronenstr. 51.
Kuntze, Berlin, Mariannenstr. 15.
Reichpietsch, Berlin, Stralauerstr. 56.
Werner, Berlin, Sebastianstr. 64.

Filz.

E.—Felt Manufacturers.
F.—Feutre (Fab. de).

Burchardt's Fabrik, Berlin, Burgstr. 27.
Feuchtenauer, M., Söhne, Berlin, Neue Grünstr. 27.
Marzillier, Berlin, Kastanien-Allee 39.
Meyer & Struck, Berlin, Elsässerstr. 6.
Silberstein jr., Berlin, Grüner Weg 3.
Württembergische Wollfilz-Manufactur, Berlin, Ritterstr. 123.

Galvanische Institute.

E.—Galvanic Institutes.
F.—Instituts galvaniques.

Aufleger, Otto, München.
Basse & Selve, Altena.
Bergmann & Rademann, Berl., Brandenburgstr. 59.
Bloch & Feldheimer, München.
Gendelmeyer & Co., Berlin, Wrangelstr. 100.
Peatrice & Co., Berlin, Dresdenerstr. 35.
Schulz, Otto, Berlin, SO., Naunynstr. 68.
Steinach, H., München.
Ulshöfer, G., München.
Winkelmann, H. F., Berlin, Hollmannstr. 41.
Württemb. Metallw.-Fabr., Geislingen, Württ.

Digitized by Google

Galvanische Kohlen.

E.—Electric Carbons.
F.—Charbons électriques.

Bendl, Jos., Kaufbeuren, Bayern.
Gerrabeck, Ludwig & Co., Eggenthal, Bayern.
Lossing, Dr. Albert, Nürnberg.
Zeller, J. & Co., Sonthofen.

Galvanoplastiker.

E.—Electrotypers.
F.—Electrotypie.

Gursch & Klemm, Berlin.
Kühnau, Rich., Leipzig.
Küstermann & Co., Berlin.
Otto, Albert, Leipzig-Reudnitz.
Rochlitz, R., Hamburg.
Sturm, O., Leipzig-Schönefeld.

Gasleitungs-Fabriken.

E.—Gas Fittings Manufacturers.
F.—Appareils de Gaz (Fab. d').

Bartel, E. F., Chemnitz.
Binner, S., Cöln.
Franke, Carl, Bremen.
Graf, B., Darmstadt.
Horsmann, Wilh., Elberfeld.
Neuhaus, Friedr., Aachen.
Oberberg, C., Wismar.
Plöger, Gebr., Hannover.
Reiser, Wilh., Stuttgart.
Roth, F., München.
Valentin, J., A. Boch & Co. Nachf. Frankfurt a/M

Gasleitungs-Unternehmer.

E.—Contractors for Gas Installations.
F.—Installations de Gaz (Entrepreneurs pour).

STAUDT, EMIL, FRANKFURT A/M.

Gasmotoren.

E.—Gas Motors.
F.—Moteurs—Gaz.

Arndt, J., Lübeck.
Berlin-Anhalt. Maschinenbau - Actien - Gesellschaft, Berlin-Moabit.
Buss, Sombart & Co., Magdeburg.
Cölner Maschinenfabrik, Carl Beissel & Co., Ehrenfeld.
Filler, Friedr., Eimsbüttel-Hamburg.
Gasmotorenfabrik, Deutz bei Cöln.
Glossier, Gebr., Frankenthal i/Pfalz.
Hallmann, Jos., Wien.
Jülg & Co., Basel.
Körting, Gebr., Hannover.
Langen & Wolff, Wien.
Lossen, Gebr. J. & C., Darmstadt.
Mark, X., Basel.
Markuth, T., Hamburg.
Mesthaler & Co., Nürnberg.
Möller & Blum, Berlin.
Reissel, C., & Co., Ehrenfeld b/Cöln.
Steinle & Hartung, Quedlinburg.

Gelb und Rothgiesser für Glocken, Kessel, etc.

E.—Bell (Electric) Makers and Founders.
F.—Sonneries électriques (Fab. de).

Becker & Frowein, Berlin, Gartenstr. 154.
Borchert & Sohn, Berlin, Alte Jacobstr. 110.
Collier, Berlin, Prinzen-Allee 65.
Grossheim, Berlin, Ackerstr. 108.
Heckmann, C., Berlin, Schlesischestr 18.
Hugo, Alisch & Co., Berlin, Belle Alliancepl. 11.
Kortman, W., Berlin, Dresdenerstr. 79.
Krebs, C. G., Berlin, Michael Kirchplatz 6.
Retschke, Berlin, Heilige Geiststr. 12.
Schaeffer & Oehlmann, Berlin, Chaussestr. 40.
Schoenbehrend, Berlin, Gr. Frankfurterstr. 122.
Weinert & Schmidt, Berlin, Stromstr. 42.

Gerbereien.

E.—Tanners.
F.—Tanneurs.

Actiengesellsch. f. Lederfabrik., München.
Bergerhoff, Gebr., Ahe b/Wiehl.
Dannheimer, Mart., Kempten.
Glasmacher, Andr., Cöln.
Kampfmeyer, W., Berlin, SO., Köpnickerstr. 93.
Quatflug, A., Aachen.
Ruland, Wm., Bonn.

Glasfabriken.

E.—Glass Works.
F.—Verreries et crystalleries.

Actiengesellsch. f. Glasfabrik., Spiegel, Fürth, Baiern.
Campe & Co., Berlin, Seydelstr. 24.
Danneleit & Klein, Berlin, Lindenstr. 25.
Glasfabrik - Actiengesellschaft Goldbach, Floss, Baiern.
Hanauer, F., für Photographen, Annathal bei Schönsee, Baiern.
Heubach & Co., Augen, Lauscha i/Th.
Kiecke, E., Tafelglas, Dittelsdorf, Kr. Sprottau, Schlesien.
Kuhnert, G., & Co., Perlen etc., Ernstthal bei Sonneberg.
Lazarowitz, F., Boxhagen bei Berlin.
Lorbach, V., Glasbläserei, Hildburghausen.
Müller, H. C. F., Hamburg.
Oettinger, Berlin, Ritterstr. 90.
Primavesi, J. C. F., & Sohn, Glasbläserei, Magdeb.
Poncet'sche, von, Glashüttenwerke, Berlin, Köpnickerstr. 54.
Rohrbeck, D. Herrman, Berlin, Königgrätzerstr. 112.
Reich, D. J., Berlin, SW., Hallisches Ufer 10.
Rhein. Glashütten - Actiengesellschaft, Cristal, Flacons, Ehrenfeld b/Cöln.
Schachtel, Charlottenbrunn i/Schl.
Schlag & Behrend, Berlin, Alexanderstr. 70.
Warmbrunn, Quilitz & Co., Berlin, Rosenthalerstr. 40.
Wilhelm, M. J., Glasbläserei, Oberweisbach i/Th.
Winzer & Uhlig, Berlin, Stallschreiberstr. 59.
Vultejus, Arno v., Hohl- & Medizin-Façongl., Carlsfeld i/S.

Digitized by Google

Glockengiesser.

E.—Bell Founders.
F.—Sonneries électriques.

Jauck, G. A., Leipzig.
Theiling, A., & Reichenbach, Magdeburg.
Ziegenspeck, Oscar, Berlin, S.

Glühlichtlampen.

E.—Incandescent Lamp Makers.
F.—Lampes électriques et Incandescence.

Greiner & Friedrichs, Stützerbach.
Müller, C. H. F., Hamburg.
Siemens, Fr., Dresden.

Gummi, Gutta Percha und Kautschuk.

E.—India Rubber, Gutta Percha, and Caoutchouc Manufacturers.
F.—Caoutchouc (Fab. de).

Clouth, Franz, Nippes-Cöln.
Continental Kautschuc Compagnie, Hannover.
Böger, Kerbig & Bergeon, Weichgummi, Gelnhausen b/Cassel.
Breithaupt, H., chirurg.-techn. Art., Düsseldorf.
Deutsche Gummiwaarenfabr., Volpi & Schlüter, Berlin, Wiesenufer 4.
Deutsche Amerik. Gummiwaarenfabr., Gebr. Bejach, Berlin, Stallschreiberstr. 56.
Flügel, Rich., Hdlg., Leipzig.
Fonrobert & Reimann, Berlin, Tempelhoferufer 17.
Frankfurter Gummiwaarenfabrik, Frankfurt a/M.
Gössmann, C., Fabr., Barmen.
Gummi-Fabrik R. Bührig, Berlin, Bergmannstr. 15.
Gummiwaarenfabr. Bolle & Co., Berlin, Müllerstr. 70/71.
Harburger Gummi Co., Harburg.
Hecht, S. A., Intern. Kautschukwaarendepôt, Hannover.
Hock, Friedr., jun., Engros-Handlung.
Hoffmann, C., techn. Art., Hdlg., Breslau.
Kunth, Alb., Münden.
Lindner, Ludw., Guttapercha, München.
Lübcke, Alex., wasserdichte Stoffe, Dresden.
Marx, Heine & Co., Fabr., Leipzig.
Metzeler & Co., chirurg. & techn. Art., München.
Messerschmidt, L. N., Harburg.
Nenzel, Georg., Giessen.
Oelbermann, Ernst, Kautschukart., Fabr., Cöln.
Otto, Em., Hdlg., Elberfeld.
Rhein. Gummiwaaren-Fabrik, Nippes b/Cöln.
Rollin, J., Kautschukfabr., Steinbach b/Sennheim i/E.
Saul, S., Fabr., Aachen.
Schaeffer, Rud., Deidesheim.
Schmiedecke, C., Berlin.
Schreiner & Siefers, Fabr., Offenbach a/M.
Schwanitz, C., & Co., Berlin, Müllerstr. 171.
Siebenlist, Gebr., Berlin, Oranienstr. 149.
Vereinigte Gummiwaarenfabr., Harburg & Wien.
Voigt & Winde, Berlin, Kottbusserstr. 5.
Young, Ed., Kautschukfabr., Stuttgart.
Ziegler, Ferd., & Co., Fabr., Breslau.
Zorn, N., Fabr., Gummi & Guttapercha, Hamburg, Wexstr. 7.

Gürtler.

E.—Braziers.
F.—Fondeurs en cuivre, etc.

Biwus, Ludw., Augsburg.
Black, Christ., Wwe., München.
Boh, C., Frankfurt a/M.
Feuerstein, N., Freiburg i/B.
Fissler, Fr., Ludwigsburg.
Froehlich, H., Regensburg.
Kaselowsky, E., Stuttgart.
Mainhart, M., Würzburg.
Seyfarth, J. W., & Sohn.
Stoll, H., Baireuth.

Gusseisen.

E.—Cast Iron.
F.—Fondeurs de fer.

Actiengiesserei, Kaiserslautern.
Asthöwer & Co., Annen.
Brod & Stieler, Zwickau, Sachsen.
Cegielski'sche Erben, Posen.
Eisenhüttenwerk der Sächs. Gusseisenfabr. Berggiesshübel.
Gräf, P., Darmstadt.
Klett & Co., Nürnberg.
Klinghart, Wurzen, Sachsen.
Krigar & Ihssen, Hannover.
Kustermann, F. A., München.
Lossen, Gebr., Concordiahütte b/Bendorf a/Rh.
Maffei, v., Regensburg.
Nieverner Hütte, Fachbach, Nassau.
Nussbaum, Gebr., Augsburg.
Ritterhaus & Blecher, Barmen.
Rossler, Max, Abensberg i/B.
Sabey, A., Geist b/Münster.
Schütz, F., Worms.
Ugé, W., Dortmund.
Webers, E., & Co., Rheine, Westph.
Zypen, v. d., & Charlier.

Haustelegraphen-Fabriken.

E.—Electric Bell Manufacturers and Contractors for House Telegraphs.
F.—Sonneries électriques (Poseurs de).

Binger & Koch, Berlin, Stallschreiberstr. 56.
Bolle, O., Berlin, W., Behrenstr. 27.
Bracke, Carl, Berlin, SW., Puttkammerstr. 14.
BRANDT, J. A., jr., Cassel.
Grubert & Sohn, Berlin, Krausenstr. 18.
Krause & Moedebeck, Berlin, Stralauerplatz 6/7.
Mix & Genest, Berlin, S., Prinzessinnenstr. 23.
Müller, Louis, Bingen a/Rh.
Nöge, Herrmann, Chemnitz.
Ropaschinsky, Berlin, Neuenburgerstr. 9.
Röschke & Buschkiel, Zittau i/Sachsen.
Wenig, Berlin, Dresdenerstr. 90.
Wagner, C. Theod. Wiesbaden.
Wehr, G., Berlin, Ritterstr. 49.
Töpffer & Schädel, Berlin, Köthenerstr. 4.

Digitized by Google

Heissluftmaschinen.

E.—Engine Makers—Caloric.
F.—Machines caloriques.

Berlin-Anhalt. Maschinenbau - Actien - Gesellschaft, Berlin-Moabit.
Buschmann, G. A., Darmstadt.
Eilenburger Eisengiess. & Maschinenfabrik, Alex. Monski, Eilenburg.
Filler, Friedr., Eimsbüttel-Hamburg.
Fredenhagen, Wilh., Offenbach a. M.
Julg & Co., Basel.

Holzkohlen-Brennereien.

E.—Charcoal Burners.
F.—Charbons de bois.

Harth, L., Gräfendorf, Unterfranken.
Schleicher, S., Gräfendorf, Unterfranken.

Ingenieure.

E.—Engineers.
F.—Ingenieurs.

André, Emil, Eschweiler.
Bahlmann, Ignatz, Dresden.
Barthold, Edmund, Braunschweig.
Bernstein, A., Berlin, Genthinerstr. 13.
Bersch, Wilhelm, Berlin, Planufer 8.
Brandt, J. & G. W. V. Nawrocki, Berlin, Leipzigerstr. 124.
Brix, Dr. Ph. P. W., Charlottenburg.
Buffleb, Adolf, Dresden.
Bühsing, H., Braunschweig.
Bürck, Adolph, Buckau-Magdeburg.
Büsch, Rud., Hamburg, Neueburg 28 I.
Busch, Obersulz, Ober-Elsass.
Capitaine, Emil, Berlin, NW., Mittelstrasse 2.
Capito, Heinrich, Mühlheim a/Rh.
Clauss, W., Braunschweig.
Deinhardt, Ludwig, München.
Druckenmüller, Berlin, Schönebergerstr. 14/15.
Eichstaedt, H., Berlin, SW., Mittelwalderstr. 5.
Grabczewski, E. von, Berlin, SW., Alte Jacobstr. 171.
Graff, J. J., München.
Gerson, Berlin, Landsberger Allee 48.
Gill, Berlin, Keithstr. 8.
Grothe, Dr. H., Berlin, SW., Alte Jacobstr. 172.
Groussilliers, de, Berlin, Kirchstr. 16.
Halscke, A., Berlin, SW., Planufer 18.
Hefner-Alteneck, F. von, Berlin, SW., Königgrätzerstr. 45.
Hollaender, Max, Kiel.
Höselin, München.
Joly, A., Essen a/R.
Kirchhoff, Berlin, Chausseestr. 77.
Krimping, C., Breslau.
Kuhnt & Deissler, Berlin, Neue Königstr. 53.
Lemelson, A., Berlin, W., Magdeburgerstr. 33.
Mass & Seeliger, Berlin, Lausitzer Platz 4.
Nedden, zur, Berlin, Grossbeerenstr. 17.
Nehrlich, Hg., Berlin, SW., Belle Alliancestr. 69.
Oehlman, F., & Protz, Berlin, Schumannstr. 17.

Ingenieure.—*Fortsetzung.*

Prins, H., Berlin, SW., Zossenerstr. 13.
Rathenau, Emil, Berlin, W., Eichhornstr 5.
Reisser, Paul, Stuttgart.
Rüdiger, Wilhelm, Berlin, C., Linienstr. 37.
Schickler, Friedrich, jr., Stuttgart.
Schmidt, Paul, Zwickau.
Schneidereit, Berlin, Brandenburgstr. 41.
Siemens, Arnold, Berlin, SW., Markgrafenstr. 94.
Siemens & Halscke, Berlin, Markgrafenstr. 93.
Sonnemann, Wilhelm, Hannover.
Spicher, August, Düsseldorf.
STAUDT, EMIL J. FRANKFURT A/M.
Stuckenholz, Berlin, Landgrafenstr. 3a.
Uhland, W. H., Gohlis-Leipzig.
Uppenborn, F., Nürnberg.
Uslar, von, Berlin, SW., Lichterfelderstr. 34.
Wagner, Alfred, Nürnberg.
Wesslau, H., Berlin, SW., Hallischestr. 5.
Winkler, K., Berlin, Reichenbergerstr. 120.
Wyngaert, Van den, Berlin, Puttkamerstr. 22.
Zacharias, Johannes, Breslau.
Ziegler, Herrmann, Hanau.
Zix, Adolf, Huckarde bei Dortmund.

Kupfer.

E.—Copper Founders.
F.—Fondeurs de cuivre.

Bande, R. v., Hannover.
Cladder, H., Geldern.
Hirsch, A., & Sohn, Hugersmühle b/Eberswalde.
Kupferhütte d. Mansfelder Gewerksch., Neustadt-Eberswalde.

Kupferschmiede.

E.—Coppersmiths.
F.—Chaudronniers.

ALISCH, E., & CO., Berlin, Alexanderplatz 3/4.
Grobel, J., Lennep.
Hasselbeck, F., Barmen.
Herzog, N., Cassel.
Hubmann, A., Bamberg.
Jeske & v. Aussem, Egeln, Sachsen.
Kessehut, K., Gifhorn.
Kirschbach, P., Anrath.
Kropp, Peter, Aachen.
Meyer, A., Hofkupferschmied, Wiesbaden.
Meyerhöfer, N., Würzburg.
Neumann, F., Berlin, N., Chausseestr. 112.
Otto, W., Berlin, C., Niederwallstr. 13.
Prümm, Theod., Cöln.
Raffler, Const., Kempten.
Schauffler, W., Ochsenfurt.
Strenny, H., Eupen.
Sturtz, J., & Söhne, Tuttlingen.
Ulmer, A., München.
Uschmann, Berg-Gladbach.
Viefhaus, Heinr., Dortmund.
Wagner, Frankfurt a/M.
Wahrendorff, Potsdam.
Weingärntner, W., Siegen.
Wery, Ludw., Zweibrücken.
Wild, P., Zabern.

Digitized by Google

Laboratorien.

E.—Laboratories.
F.—Laboratoires.

Braun, Dr. B. T., Rosswein, Sachsen.
Brunnengräber, Dr. G., Rostock i/M.
Buchner, Dr. Carl, München.
Ebermair, Dr. E., Nürnberg.
Horb, W. A., Pulsnitz, Sachsen.
Kurz, Dr. A., Wernigerode.
Laborat. f. analytische Untersuch., Fabr. chem. Prod., Stuttgart.
Wittstein, Dr. A., München.

Ledertreibriemen.

Siehe Maschinen-Rieme.

Maschinenbauwesen.

E.—Machinery Manufacturers.
F.—Machines (Fab. de).

Actien-Gesellschaft für Maschinenbau, Wilhelmshütte bei Sprottau.
Berlin-Anhalter Maschinenbau-Ges., Charlottenburg & Berlin.
Berliner Act.-Ges. für Eisengiesserei, Charlottenburg, Salzufer 9/11.
Berliner Masch.-Bau-Act.-Ges., Berlin, Chausseestr. 17/18.
Chemnitzer Werkzeugmaschinenfabr. Zimmermann, Görlitz.
Elsässische Masch.-Bau.-Ges., Mühlhausen, Elsass.
Elsässische Electricitäts-Ges., Strassburg, Elsass.
Grüson, H., Buckau, Magdeburg.
Hagen-Grünthaler-Eisenwerke, Hagen, Westphalen.
Klein, Schanzlin & Becker, Frankenthal, Falz.
Kletta & Co., Nürnberg.
Krauss & Co., München.
Lissmann, Berlin, Gr. Frankfurterstr. 118a.
Märkische Masch.-Bau-Anst., Wetter a/Ruhr.
Maurer, Ferd., & Co., Berlin, Alexandrinenstr. 16.
Roessemann & Kühnemann, Berlin, Gartenstr. 21.
Sächsische Masch.-Fabr., Hartmann, Chemnitz.
Schuckert, Sigmund, Nürnberg.
Theissen, Eduard, Lindenau-Leipzig.
Tietzsch, W., & Co., Berlin, Chausseestr. 29.
Wöhlert'sche, F., Masch.-Bau-Ges., Berlin, Chausseestr. 36/37.
Wolff, B., Buckau, Magdeburg.

Maschinen-Rieme.

E.—Driving Band Manufacturers.
F.—Courroies de transmission.

Bandekow, Gebr., Berlin, Lindenstr. 2.
Bantlin, C. D., Reutlingen.
Beringer, Carl, Stuttgart.
Driessen, P., Eupen.
Emrich, R. L., Kusel.
Evertz & Grohe, Cöln.
Goern & Co., Berlin, Oranienstr. 81/82.

Maschinen-Rieme.—*Fortsetzung.*

Grapentien & Meyer, Berlin, Louisen-Ufer 1d.
Grauenhorst & Co., Berlin, Adalbertstr. 59.
Hanisch, W., jun., Berlin, Holzmarktstr. 8.
Hartmann, M., Augsburg.
Heusch, Hugo, Aachen.
Heyer, A., Braunschweig.
Ibing, K., Broich.
Kaesse, F. W., Berlin, Elisabeth Ufer 43.
Kühne, F. W., Berlin, Brandenburgstr. 6.
Lange & Pöhler, Arnstadt, Thür.
Moll, Riehl b/Cöln.
Paulsen, Adolph, München, Müllerstr. 8.
Pinsdorf, Oswald, Leipzig.
Polenz & Richter, Berlin, Kürassierstr. 4.
Rammer, Fr. Jos., Chorn bei Pulsnitz.
Sauer, G., Marburg.
Schanzenbach, Gebr., Möckmühl, Württ.
Schlaier, J. J., Reutlingen.
Schmidt & Zorn, Berlin, Kommandantenstr. 31a.
Schwartz, Ad., & Co., Berlin, Kochstr. 73.
Schmidt, C., Sohn, Breslau.
Selter & Eloesser, Berlin, Louisen-Ufer 7.
Thide & Clauss, Berlin, Neue Grünstr. 38.
Torrige, E., Breslau.
Wagner, A., Neu Sellershausen b/Leipz.
Wagner, Gebr., Suhl.

Maschinentheile.

E.—Fittings and Small Work for Machinery.
F.—Appareils pour Machines.

Aberle, D., Mannheim.
Ackermann, H. C. O., Hamburg.
Albanico, C. H., Greifswald.
Alexishütte, Wietmarschen.
Allendorf, Carl, Gösnitz.
Ammann, Joh., St. Gallen.
Annener Gussstahlwerk, Actien-Gesellshaft, Annen.
Asmus, Julius, Freiburg.
Bayer, W., Weinheim.
Becke, Adolph von der, Sundwig.
Berg & Hüttenverwaltung, Achthal.
Berliner Eisengiesserei & Werkzeugmaschinenfabrik, vorm. W. Tietzsch & Co., Berlin.
Beyer, Theod., Coburg.
Bierling, C. A., Dresden.
Bovermann & Schubeis, Gevelsberg.
Bracher, J., Söhne, Villingen.
Bracker, G. D., Söhne, Hanau. a. M.
Braun, Franz, Zerbst.
Brodbeck, Jac., Säckingen.
Buch, J. M., Haardt.
Bückmann, C., Rheydt.
Burger Eisenwerks-Act.-Ges., Burg.
Busch & Kritzenthaler, Bayreuth.
Cargill, Gebr., Belgard.
Carmanns, Peter, M.-Gladbach.
Carolinenhütte, Burglengenfeld.
Dampf- & Spinnerei-Maschinenfabrik, vorm. Theod. Wiede, Chemnitz.
Dinger, Karcher & Co., St. Johann a. Saar.
Donnersmarkhütte, Zabrze.

Digitized by Google

Maschinentheile.—*Fortsetzung.*

Ehlis, Pet., Schleppenpohler-Hammer.
Ehmke, Paul, Neustettin.
Eisenhütten- & Emaillirwerk "Tangerhütte", Frz. Wagenführ, Tangerhütte.
Eisenhüttenwerk, Keula.
Elsner, Ernst, Stargard.
Erzherzog Albrecht'sches Hüttenamt, Trzynietz.
Erzherzog Albrecht'sches Hüttenamt, Saybusch.
Fischer, C., Augsburg.
Fischer'sche Weicheisen- & Stahlgiesserei-Gesellschaft, Traisen.
Fischer, Gg., Schaffhausen.
Foltzer, Ed., Wintzenheim.
Frank, A., Stolberg.
Fürstl. Hohenzollern'sche Hüttenverwaltung, Laucherthal.
Fürstl. Liechtenstein'sche Maschinenfabriks-Direction, Adamsthal.
Geisler, J. G., Schweidnitz.
Gräfl. Clamgallass'sche Eisenwerks-Verwaltung, Ransko.
Greuling, Carl, Remscheid.
Grunauer, Louis, Berlin.
Gruson, O., & Co., Buckau-Magdeburg.
Gräfl. Kolowrat'sches Guss- & Eisenwerk, Rosshütte, Post Solnitz.
Gutehoffnungshütte, Oberhausen a. d. Ruhr.
Hackenbuchner, Gg., Salzburg.
Haeberlein, Gg., Nürnberg.
Haenel, Ed., jr., Magdeburg.
Haeussler, Chr., Dinglingen.
Hannover'sches Guss- & Walzwerk, vorm C. Bernstorff & Eichwede, Hannover.
Hansa, Werft für Schiffe und Maschinenbau-Anstalt, Rostock.
Harms, J. A., Hamburg.
Hennes, F., Aachen.
Hennig, A., Gleiwitz.
Herforder Eisengiesserei, Herford.
Herrmann, F. R., Hammerwerk Elterlein.
Hoffmann, Carl, Heilbronn.
Holder-Egger, Gebr., Memel.
Holtz, H. W., Dülken.
Hummel, C., Berlin.
Jacobi, J. F., Henef a. d. Sieg.
Jockel, Carl, Wien.
Kattentidt & Kleucker, Hildesheim.
Kelle & Hildebrandt, Dresden.
Keyling & Thomas, Berlin.
Kleiner, Ludwig. Mindelheim.
Klinzer, A., Klagenfurt.
Knepmann, H., Annen.
Koch & Franksen, Oldenburg.
König Friedrich-August-Hütte, Pottschappel.
Königl. Eisengiesserei & Maschinenbau-Anstalt, Gleiwitz.
Königl. Hüttenamt, Lerharde.
Königl. Württemb. Hüttenverwaltung Wilhelmshütte, Schussenried.
Kötter, O., Barmen.
Krafft & Depiereux, Düren.
Krompach-Hernader Eisenwerk, Krompach-Zips.
Lautenberg, J., Altona.

Maschinentheile.—*Fortsetzung.*

Leobersdorfer Maschinenfabrik & Eisenq., J. Neumann, Leobersdorf.
Leutert, E., Halle a. d. S.
Leutner, Joh., Wien.
Lindener Eisengiesserei, Bockelmann, Riechers & Co., Linden.
Lorenz, J. W., Passau.
Lüssi, J., Wien.
Maass, Gebr., Neustrelitz.
Mack & Capallo, Mannheim.
Malovich, J., & Co., Hernals-Wien.
Marion, A., jr., Fraulautern.
Martin & Manig, Elsterwerda.
Maschinenb.-Act.-Ges., v. Klett & Co., Nürnberg.
Meisser Eisengiesserei & Maschinenbau-Anstalt, vorm. F. L. & E. Jacobi, Meissen.
Merzbacher & Fried, Nürnberg.
Michaelsen, Herm., Ottensen.
Neuberg-Mariazeller Gewerkschaft, Wien.
Neuwieder Maschinenfabrik & Eisenq., J. H. Zimmermann, Neuwied.
Noback & Co., Holeschowitz-Bubna.
Oetl, Anton, Budapest.
Ohren, A. & W., Velbert.
Oldenburg, H., Oldesloe.
Ostermann & Sohn, Hannover.
Paul & Co., Radebeul-Dresden.
Paul & Söhne, Crimmitzschau.
Peltzer & Co., Aachen.
Persoon, J. H. W., Hamburg.
Peters, Wilh., Kückelhausen.
Pietzsch, Carl, Lemberg.
Polysius, G., Dessau.
Potthoff & Flume, Louisenhütte.
Reinhardt, J. H., Würzburg.
Remy'sche Eisengiess., Oberlahnstein.
Renk, Joh., Augsburg.
Reuling, Gebr., Mannheim.
Reunert & Co., Witten a. d. Ruhr.
Reuter, F. A. L., Hamburg.
Richter, Carl Aug., Alt-Chemnitz.
Roemer, Oscar, Ulm a. d. D.
Roessemann & Kühnemann, Berlin.
Sächs. Gussstahlfabrik, Döhlen.
Sarholz, J., Offenbach a. M.
Sauer, V., Staudernheim.
Schmidt, Cornelius, Mülheim a. Rh.
Schmidt, Gebr., Radolfzell.
Schmitt, Gebr., Issenheim.
Schneider, Rob., Düsseldorf.
Schnell & Schneckenburger, Nachf., Oberburg.
Schoenen, Jos., Aachen.
Schöning, Carl, Berlin.
Schreiner, Joh., Graz.
Sebold & Neff, Durlach.
Spies, Frdr., Söhne, Barmen.
Steffens, Peter, Goldenkron.
Stein & Co., Aachen.
Strom, B., Dülken.
Sugg, Kaiser & Co., München.
Szinobanyaer Eisenwerk, Szinobanya.
Technisches Central-Bureau für Maschinen- & Baufach, Frankfurt a. M.

Digitized by Google

Maschinentheile.—*Fortsetzung.*

Uhle, H., Chemnitz.
Unger & Co., Werdau.
Verwaltung der Fürst-Erzb. Berg- & Hüttenwerke, Friedland.
Vogelsinger & Bastrée, Simmering.
Vogt, frères, Massemünster, i. E.
Waelde, Kade & Erath, Steinbach.
Wagener, Carl, Hildesheim.
Walterhütte bei Nicolai.
Walther & Wagner, Schleiz.
Wessell, C. F., Lübeck.
Wienbarg, W., & Co., Altona.
Wimmer, Leop., Randegg.
Wörner, J., & Co., Budapest.
Wurmbach, Jul., Bockenheim.
Zieleniewski, L. Krakau.
Zink, J., & Sohn, Berkheim.

Machinen- & Modell Zeichner.

E.—Designers of Models and Machinery.
F.—Dessinateurs.

Bemme, C., Berlin, Blumenstr. 53.
Broecker, Berlin, Belforterstr. 29.
Lapieng, Berlin, Behrenstr. 55.
Röhl, Berlin, Lichterfelderstr. 8.
Zierow, Berlin, Prinzenstr. 23.

Mechaniker.

E.—Mechanicians.
F.—Mécaniciens.

Albert, F. W., Frankfurt a/M., Neue Mainzerstr. 34.
Böhm & Wiedemann, München, Kaufingenstr. 20.
Bohnenstengel, Emil, Berlin, SW., Johannisstr. 16.
Bredemeyer, Frankfurt a/Oder.
Buchmeyer, F. W., Bremen.
Deckert, Julius, Glatz.
Dörffel, P., Berlin, NW., U. d. Linden 46.
Duncker, W., Breslau.
Ehrlich, Fr., Schweidnitz i/Schl.
Förster, H., Posen.
Gröper, Albin, Düsseldorf.
Koch, Rudolph, Göttingen.
Leuner, Dresden.
Matthäus, Paul, Görlitz.
Neher, Joh., München, Barerstr. 34.
Perge, Theodor Georg, Würzburg.
Pfankuch, Carl, Cöln a/Rh.
Rohde, P., Cöln a/Rh.
Schröder, Ch., Frankfurt a/M.
Schwerd, L. E., Karlsruhe i/B.
Stürm, Franz Xaver, Regensburg.
Wendt, Ernst Herrmann, Dresden.

Metall-Affinir-Anstalten.

E.—Metal Refiners.
F.—Raffineurs.

Ginsberg, Berlin, Alte Jacobstr. 1206.
Lust, W. & Sohn, Berlin, Kochstr. 36.
Mayn, H. & Co., Berlin, Sebastianstr. 20.
Rössler & Co., Berlin, Alte Leipzigerstr. 11.
Sachs & Edinger, Berlin, Schlossfreiheit 7.

Metalle—Fabriken und Handlungen.

E.—Manufacturers and Dealers in Metals.
F.—Métal (Fab. et Marchands de).

Anderleit & Sohn, Berlin, Steinstr. 19.
Basse & Selve, Altena, Westphalen.
Berger, E. & O., Berlin, Alexanderstr. 31.
Elbinger Messingwerk, Elbing.
Fesca, C. A., & Sohn, Berlin, Ziegelstr. 18/19.
Gross & Co., Berlin, Mittelstr. 22.
Hesse, F. A., Söhne Heddernheim.
Lademann, C. F. W., Söhne, Berlin, Wallstr. 84/85.
Lothringer Eisenwerke, Ars a/Mosel.
Loss & Dressler, Berlin, Hollmannstr. 35.
Kolbe & Kleeman, Berlin, Fruchtstr. 33/34.
Sauer, Berlin, Schlegelstr. 24.
Schlenck, C., Roth bei Nürnberg.
Selig, M., jr., & Co., Berlin, Carlstr. 20.
Sieg-Rheinische Gewerkschaft, Friedrich Wilhelmshütte.
Zorn & Hülle, Berlin, Weinmeisterstr. 14.

Motoren.

E.—Motors.
F.—Moteurs.

Arndt, J., Gas, Lübeck.
Böhnar & Köster, Limburg a. Lahn.
Cremer, A., Wasser, Hörde.
Gasmotorenfabrik, Deutz b/Cöln.
Hildt & Mezger, Berg-Stuttgart.
Hock & Co., Wien.
Holt, Thomas, Triest.
Körting, Gebr., Gas, Hannover.
Kraiss & Fritz, Wasser, Stuttgart.
Kyll, F., Döbeln.
Lausitzer Maschinenfabrik, Actiengesellschaft, Wasser, Bautzen.
Lossen, Gebr., Darmstadt.
Markuth, T., Gas, Hamburg.
Maschinenbau-Anstalt Golzern bei Grimma.
Müller, Wilh., Troppau.
Pistorius, D., Holzminden a. d. Weser.
Riettmann, N., Nettstall, Schweiz.
Saaler, Carl, Theningen.
Schumacher, W., Wasser, Cöln.
Stieberitz & Müller, Apolda.
Straub, D., Geislingen.
Trautscholt & Ruhusen, Sudenburg-Magdeburg.

Digitized by Google

Münzstätten.

E.—Mints.
F.—Monnaie.

Chrisman, Ph., Pforzheim.
Dtsch. Gold- & Silberscheideanst., Frankfurt a/M.
Hauptmünzamt, München.
Köhler, C., Gmünd, Württ.
Krause, Jean, Hanau a/M.
Richter, Dr., & Gutmann, Gmümd, Württ.
Richter, Dr., & Co., Pforzheim.

Nägel.

E.—Nails.
F.—Clous.

Beckert, C., Ulm.
Christian, Peter, Kuchhausen b/Cronenberg.
Hasenclever & Söhne, Düsseldorf.
Kaderhand & Co., München.
Knapp, Gebr., Neuss b/Düsseldorf.
Körber, A., Oppeln.
Lechner & Schlegel, Nürnberg.
Libhorner, Andr., Speyer.
Mayr & Tritschler, Tübingen.
Mess, Heinr., Essen a/Ruhr.
Muck & Bensino, Landstuhl, Pfalz.
Quirine & Schmidt, Berge-Borbeck.
Quitmann, Rud., Altena.
Rath, Gg., Saarn b/Mülheim a/R.
Roth, Heck & Schwimm, Ixheim b/Zweibr.
Schröder, C. F., Osnabrück.
Vohstedt, E., Hamburg.
Vohwinkel, Alb., Vohwinkel b/Elberfeld.
Wallner, Fr., Cöln.
Zahler, Dav & Co., Augsburg.
Zeitler, Thom., Naila, Baiern.
Zeitler, W., Weissenstadt i/B.

Nickel.

E.—Nickel.
F.—Nickel.

Basse & Selve, Altena.
Fleitmann & Witte, Iserlohn.
Fleitmann & Witte, Schwerte b/Dortmund.
Victoriahütte, Actiengesellsch., Naumburg a/Bob.

Oel.

E.—Oil.
F.—Huile.

Aston, S., Burg.
Bauer, Gebr., Karlstadt a M.
Baumann, G. A., Heilbronn.
Becker & Sohn, Stralsund.
Behne & Hertz, Harburg a. Elbe.
Berliner Producten- & Handelsbank, Berlin, Michael-Kirchstr. 14.
Berthold, J. G., Nieder-Neukirch.
Bohnert, G., Oppenau.
Böhringer, C., Sparbrod i/E..
Böttgers, L., Emden.

Oel.—*Fortsetzung.*

Bricks, Gebr., Cottbus.
Bubenzer, Leop., Freudenberg b/Siegen.
Burberg, Gebr., Mettmann.
Büttner, Ed., Leipzig.
Dehling & Hartmann, Regensburg.
Deiglmayr, A., München.
Escher, Wyss & Co., Zürich.
Espermüller, Ad., Kaufbeuren.
Foerster & Co., Goldberg.
Fürstl. Salm'sche Eisengiess. & Maschinenfabrik, Blansko.
Geisreuther, L., Pfaffenhofen a/Ilm.
Günther, Aug., Strassburg i/E.
Hänsel & Hennet, Rüböl, Halle a/S.
Heinze, B., Darmstadt.
Heinze, P. P., Frankfurt a/M.
Holste, H., & C., Wundsdorf.
Huth & Richter, Berlin, Dresdenerstr. 35.
Kallmeyer, Gebr., Erfurt.
Koelsch, W. & Co., Worms a/Rh.
Königsberger Machinenfabrik, Rich. Laudien Königsberg i. Pr.
Krautwig, Jos., Stotzheim.
Merkens, Aug., Eschweiler.
Metticovitz, A., Triest.
Metz, Gebr., Wahlbach, Kr. Siegen.
Meurer, Gebr., Frankfurt a/M.
Nenzel, Georg, Giessen.
Paucksch, H., Landsberg a. d. W.
Paucksch, H., Deutsch-Eylau.
Polborn, Berlin, Kohlenufer 1/3.
Remme & Wichmann, Berlin, Neue Königstr. 10.
Reissner, A., Söhne, Berlin, Kupfergraben 4a.
Richard, Ph., Frankfurt a/M.
Schmahl, J., Mainz-Gartenfeld.
Schücking, Theod., Bochum a/Rh.
Schultz, Gebr., Mainz-Gartenfeld.
Sluyter, Geschw., Cleve.
Spengemann & Co., Nordhausen.
Stettiner Maschinenbau-Anst. & Schiffsbauwerft-Actien-Ges., vorm. Möller u. Holberg, Stettin.
Stoberitz & Müller, Apolda.
Tywissen, Hch., Aachen.
Vogtherr, Ludw., Bamberg.
Wappler, J. G., Leipzig.
Wegele, N., Traunstein.
Wild, Joh. Bapt., Fürth a/Walde.
Zum Brunnen, Fratelli, Triest.

Optische und meteorolog. Instrumente.

E.—Optical and Meteorological Instrument Makers.
F.—Instruments optiques et meteorologiques.

Clement, Berlin, Holzgartenstr. 9.
Fuess, R., Berlin, Alte Jacobstr. 108.
Greiner, J. G., sen., & Sohn, Berlin, Kurstr. 15.
Obenaus, J. G., sen., Berlin, Friedrichsgracht 49.
Obenaus, O., jun., Berlin, Fischerbrücke 2.
Plath, Berlin, Kanonierstr. 43.
Schultze, G. A., Berlin, Schmidstr. 42.
Strauss, Gebr., Berlin, U. d. Linden 44.
Zorn, Berlin, Schenöbergerstr. 17.

Digitized by Google

Patent-Bureaux.

E.—Patent Offices and Agents.
F.—Brevets d'invention.

Brandt, J., Berlin, Königgrätzerstr. 131.
Brandt & von Nawrocki, Berlin, Leipzigerstr. 124.
Brydges & Co., Berlin, Königgrätzerstr. 73.
Doepner, Berlin, Lützowstr. 13.
Kessler, C., & Co., Berlin, Königgrätzerstr.
Knoblauch & Co., Berlin, Charlottenstr. 17.
Lenz & Schmidt, Berlin, Grenadierstr. 8.
MENDEL, BERTHOLD, BERLIN, LÜTZOW-STR. 84.

Pergament.

E.—Parchment.
F.—Parchemin.

Bechtolsheim, M. v., München.
Custodis & Co., Düsseldorf.
Dehner, C., Würzburg.
Dickmann, Hugo, Dortmund.
Klauer, H., Düsseldorf.
Rommel, G., Hof.
Körner, Joh., Nürnberg.
Podewils, v., & Heinze, München
Rube, H. & Co., Dortmund.
Steinmann, F., Dresden.
Wildpret, C., Augsburg.

Polir- und Schleifmaschinen.

E.—Polishing and Grinding Machines.
F.—Machine qui sert à polir.

Bollmann, L., & Co., Baumgarten.
Breitenbach, Gerlach, Sieghütte.
Ernshaw, J. Edw., & Co., Nürnberg.
Klingelhöffer, Carl, Rheydt.
Pallenberg, Jos., Mannheim.
Stumbeck, N., Rosenheim.

Porzellan-, Steingut- und Thonwaaren-fabrikation.

E.—Porcelain, Stoneware, and Earthenware Manufacturers.
F.—Porcelaine, poterie de grès, etc.

Bockhacker, H., Berlin.
Bonner Eisengiess. & Maschinenfabrik, Friedr. Buderus, Gebr., Hirzenhainerhütte.
Bordello, Gebr., Grünstadt, Baiern.
Constantinhütte bei Freiberg.
Degenring, Th., Katzhütte.
Dinse, A., Berlin.
Driesel, Kriesel & Co., Passau.
Fischer, Chr., Zwickau.
Gräfner, G., & Co., Pulsnitz.
Hoffmann & Zinkeisen, Zwickau.
Hölterhoff & Exner, Cöln.
Hutschenreuther, L., Selb b/Hof, Baiern.

Porz.-, Steing.- u. Thonw.-Fabrik.—*Forts.*

Jörning & Sauter, Buckau-Magdeburg.
Jordan, J., Sohn, Darmstadt.
Kgl. bair. Porzellan-Manufactur Nymphenburg, Nymphenburg b/München.
Kgl. Porzellan-Manufactur, Meissen.
Laeis, Ed., & Co., Trier.
Langenstein & Schemann, Ernsthütte.
Leibe & Hoffmann, Gera.
Loser, A., Bendorf.
Meissner Eisengiess. & Maschinenbau-Anstalt, vorm. F. L. & E. Jacobi, Meissen.
Mönkemöller, Bonn a. Rh.
Nenzel, Georg, Giessen.
Netzsch Gebr., Selb i. Baiern.
Pallenberg, Jos., Mannheim.
Schlickeysen, C., Berlin.
Stettiner Maschinenbau-Anst. & Schiffsbauwerft-Actien-Gesellschaft, vorm. Möller & Holberg, Stettin.
Utzschneider & Co., Saargemünd.
Windisch & Kunze, Meissen.

Physicalische Apparate.

E.—Physical Science Apparatus Makers.
F.—Appareils scientifiques.

Gallinger, Johann, Ostermünchen.
Hartmann, Eugen, Würzburg.
Kolbe, Herrmann, Halle a/S.
Lohner, Franz Xaver, München.
Stollnreuther & Sohn, München, Marsstr. 32.

Regulator-Fabrikanten.

E.—Governor Makers.
F.—Régulateurs (Fab. de).

Buss, Somart & Co., Magdeburg.

Röhren—Eisen.

E.—Iron Pipe Manufacturers.
F.—Tuyaux (Fab. de).

Ballek, F. J., Prag-Smichow.
Berliner Action-Gesellschaft für Eisengiesserei und Maschinenfabrikation vorm. J. C. Freund & Co., Charlottenburg.
Bertrams, Hch., Siegen.
Buch, J. M., Haardt.
Burger Eisenwerks-Actien-Gesellschaft, Burg.
Doerfel, Rich., Kirchberg.
Dresdener Fabrik für Gas- & Wasser-Anlagen, A. C. Merkel, Dresden.
Dürr, G., Creglingen.
Düsseldorfer Röhren etc. Walzwerke, Düsseldorf.
Eickhoff, Gebr., Bochum.
Eisenhütten- & Emaillirwerk "Tangerhütte". Frz. Wagenführ, Tangerhütte.
Eisenhüttenwerk, Koula.

Digitized by Google

Röhren—Eisen.—*Fortsetzung.*

Eisenhüttenwerk Marienhütte, Kotzenau.
Erzherzog Albrecht'sches Hüttenamt, Saybusch.
Fürstl. Colloredo-Mansfeld'sche Eisenwerke, Dobrisch.
Fürstl. Salm'sche Eisengiesserei und Maschinenfabrik, Blansko.
Gobiet, L., Düsseldorf.
Gräfl. Clam-Callas'sche Eisenwerks-Verwaltung, Blansko.
Hannöversche Eisengiesserei, Hannover.
Heckmann, C., Berlin.
Henriettenhütte, Rümkenau.
Holdinghausen & Reifenrath, Siegen.
Holdorff & Brückner, Wien.
Huldschinsky & Söhne, Bahnhof Gleiwitz.
Jacobi, A., Brandenburg a. H.
Jaeger, G. & J., Elberfeld.
Jahiet, Gorand, Lamotte & Co., Oettingen.
Jooss Söhne & Co., Landau.
Kattentidt & Kleucker, Hildesheim.
Kölnische Maschinenbau-Actien-Gesellschaft, Bayenthal.
Königl. Eisengiess. & Maschinenbau-Anstalt, Gleiwitz.
Krackhardt, Ernst, Brünn.
Kuntze, Gust., Göppingen.
Laas, C., Quedlinburg.
Lauchhammer, Grödlitz b/Riesa.
Leutert, E., Halle a. S.
Mack & Capallo, Mannheim.
Mathes & Hofmann, Frohburg.
Menesdorfer'sches Eisenwerk, Marienhütte bei Göllnitz.
Müllers & Co., Ehrenfeld-Cöln.
Neuberg-Mariazeller Gewerkschaft, Wien.
Neusser Eisenwerk, Daelen & Burg, Heerdt.
Poensgen, Gebr., Düsseldorf.
Pornitz, U., Chemnitz.
Puricelli, Gebr., Rheinböllerhütte.
Reimherr & Co., Stuttgart.
Remy & Reifenrath, Herborn.
Rohmann, T., Conradshöhe b/Tegel, Brandenb.
Schalk'er Eisenhütte, Westphalen.
Schenk, Joh., Messendorf.
Schwingshakl, A., Laibach.
Steyerische Eisen-Industrie-Ges., Wien.
Steinmüller, L., & Co., Gummersbach a/Rhein.
Stückenholz, G., Barbarahütte, R.-B. Breslau.
Stühlen, P., Deutz.
Sugg, Kaiser & Co., München.
Szinobanyaer Eisenwerk, Szinobanya.
Waldstein-Wartenberg'sche Stiahlauer Eisenwerke, Sedlec.
Wiethage, C., Witten a/Ruhr.

Röhren—Messing und Kupfer.

E.—Tubes—Brass and Copper.
F.—Tuyaux—Laiton et cuivre.

BOOTH & CO., Sheepcote-street, Birmingham. Telephon Nr. 311.

Röhren—Thon.

E.—Earthenware Pipe Manufacturers.
F.—Tuyaux en grès.

Barteldt, Berlin, Hornstr. 96.
Berger & Kulp, Berlin, Schönebergerstr. 22.
Cochius, Berlin, Ritterstr. 13.
Deutsche Thonröhren-Fabrik, Berlin, Mühlenstr. 24.
Deutsche Thonröhren und Chamotte-Fabrik, C. A. Brandt, Münsterberg i/Schlesien.
Deutsche Thonröhren-Chamotte-Fabrik, Münsterberg.
Deutsche-Portland Cement-Fabrik, Berlin, Friedrichstr. 185.
Glinicke, Berlin, Elisabethufer 44.
Goodson, Berlin, Potsdamerstr. 22.
Haag, Joh., Berlin, Halleschestr. 28.
Kammerich & Co., Berlin, Fennstr. 27.
Meyer & Co., Berlin, Trebbinerstr.
Rosenthal, H., Berlin, Chausseestr. 113.
Toeppe & Co., Berlin, Schiffbauerdamm, 16.

Röhren—Zinn und Blei.

E.—Pipes—Tin and Lead.
F.—Tuyaux—Etain et Plomb.

Bergmann & Franz, Berlin, Köpnickerstr. 50.
Budde & Grohde, Berlin, Gitschinerstr. 32.
Jung & Lindig, Freiberg i/Sachsen.
Krafft, Berlin, Köpnickerstr. 116.
Teichelmann & Sauer, Berlin, Holzmarktstr. 44.
Wipprecht, vorm. Roeder & Co., Berlin, Prinzenstr. 35.

Salpeterfabrikation u. Salzmühlen.

E.—Saltpetre and Potash Manufacturers.
F.—Salpêtre (Fab. de).

Sauerbrey, G., Stassfurt.

Schmelzer und Probirer.

E.—Assayers and Smelters.
F.—Essayeurs et Fondeurs.

Barella Nachf., Berlin, Köpnickerstr. 139
Berliner Medaillen-Münze, Berlin, Neue Friedrichstr. 56.
Deppe, Berlin, Stallschreiberstr. 12.
Flügge & Rietz, Berlin, Brandenburgstr. 61.
Hirschfeld & Meyerheim, Berlin, Adalbertstr. 40.
Lipke, Gebr., Berlin, Prinzenstr. 84.
Meyer, N. & Co., Berlin, Sebastianstr. 20.
Sy & Wagener, Berlin, Kronenstr. 28.
Voeltzkow jr., Berlin, Sebastianstr. 76.

Digitized by Google

Schmieden.

E.—Smiths.
F.—

Aerzener Maschinenfabr., Ad. Meyer, Aerzen.
Eckhart, H., Dresden.
Heim, Friedr., & Co., Offenbach a. M.
Kaempf, J. C., Frankfurt a. M.
Krigar & Ihssen, Hannover.
Mannheimer Maschinenfabrik, Schenck Mohr & Elsässer, Mannheim.
Neuwieder Maschinenfabrik & Eisengiess. J. H. Zimmermann, Neuwied.
Pechanek, Fr., Königgrätz.
Pellens & Co., Ehrenfeld-Cöln.
Schaller, Jos., Wien.
Schiele & Co., Bockenheim.
Schmidt & Zorn, Berlin.
Schwabe & Popp, Wien.
Schwartz, Anton, Cöln a. Rh.
Spelleken, H., Barmen.
Tillmanns, Jul., Remscheid.
Uehlinger, H., Schaffhausen.

Schrauben.

E.—Screws.
F.—Vis (Fab. de).

Buchholz, Rob., Remscheid.
Heine, Gebr., Offenbach a/M.
Prinz & Blacke, Altena.

Schrauben und Feilen.

E.—Screws and Files—Manufacturers of.
F.—Vis et limes.

Act.-Ges. für Feilen Fabric., Berlin, Chausee-str. 39.
Alst, Heinrich, Berlin, C., Friedrichstr. 131.
Behm & Madler, Berlin, Eisenbahnstr 5.
Beuttel & Hundt, Berlin, Waldemarstr. 27.
Engl. Feilenfabrik, Berlin, Schwedterstr. 16.
Façon-Schmiede-Gesellschaft, Berlin Reinicken-dorferstr. 64.
Hall, Charlottenburg bei Berlin.
Hülle & Zorn, Berlin, Weinmeisterstr. 14.
Kammerich & Co., Berlin, Fennstr. 27.
Lotz & Dressler, Berlin, Hollmanstr. 35.
Schulz & Roelke, Berlin, Prinzenstr. 33.
Weisser, J. G. & Söhne, St. Georgen, Schwarzwald.

Seiler und Tauer.

E.—Rope Makers.
F.—

Berwald jun., Berlin, Klosterstr. 49.
Diederich, C., Berlin, Biesenthalerstr. 10.
Fabricius, C., Berlin, Karlstr. 20a.
Falk, F., & A., Zwickau.
Haase, R., Berlin, Grosse Frankfurterstr. 47.
Herdieckerhoff, O., Unna i/W.
Jordan, J., Fürth.
Kaniss, A., Wurzen i/S.

Seiler und Tauer.—*Fortsetzung.*

Lüdge, Berlin, Lützowstr. 29.
Meyer, Gebr., Strassburg.
Rodeck, Berlin, Schützenstr. 60.
Sängheiser, Ph., Bingen.
Schomburg & Söhne, Berlin, Alt Moabit 97.
Schweimen-Venedey, Cöln.
Schwaiger, Jos., München.
Schwander & Co., Berlin, Bischofstr. 22.
Thiele & Clauss, Berlin, Neue Grünstr. 33.
Wildelau, Berlin, Wilhelmstr. 52.

Signale, Weichen und Schienen.

E.—Manufacturers of Railway Signals & Switches.
F.—Signaux et aiguilles de chemins de fer.

Burri, W., München.
Cuypers, W., Pieschen bei Dresden.
Dreyer, Rosenkranz & Dröge, Hannover.
Lange, C., & Co., Kükelhausen.
Liebig, Dr. G., Reichenhall.
Rheinische Stahlwerke, Ruhrort.
Saxonia, Eisenwerke, Radeburg i/Sachsen.
Schmidt, C. G., Chemnitz.
Schnabel & Henning, Bruchsal, Baden.
Schwerd, C. E. & C., Carlsruhe.
Vogele, Jos., Mannheim.
Walischmüller, H., Speyer.

Steingut.

E.—Stoneware Manufacturers.
F.—Tuyaux en poterie.

Briander & Co., Saarbrücken.
Husel, Joh., Kehlheim.
Kick, Eduard, Amberg,
Schaaf, J., Frechen b/Cöln.

Talg.

E.—Tale.
F.—Talc.

Brinkmann, H., Barmen.
Kolker, Gebr., Breslau.
Holländer, S., Ehrenfeld.
Messe & Vogel, Hamm, Westph.
Demoter & Fuchs, Kempten.
Weber, C. G., Leipzig, Brühl 58.
Hummel, Gebr., München.
Jörgens, J., Werther.

Technische Zeitschriften.

E.—Scientific Publications.
F.—Publications scientifiques.

Allgemeines Journal für Uhrmacherkunst, Leipzig.
Amtsblatt der Deutschen Reichs-, Post- & Telegraphen-Verwaltung, Reichspostamt, Berlin.
Annalen der Hydrographie, Kaiserl. Admiralität, Berlin.
Annalen der Physik und Chemie, Leipzig.

Digitized by Google

Technische Zeitschriften.—*Fortsetzung.*

Annalen für Gewerbe & Bauwesen, Berlin.
Archiv für die Artillerie- und Ingenieur-Offiziere des deutschen Reichsheeres, Berlin.
Archiv für Post & Telegraphie, Reichspostamt, Berlin.
Baugewerkzeitung, Berlin.
Berichte der deutschen chemischen Gesellschaft, Berlin.
Centralblatt der Bauverwaltung, Berlin.
Central-Zeitung für Optik und Mechanik, Leipzig.
Chemiker-Zeitung, Cöthen.
Chemisch-technisches Repertorium, Berlin.
Der Metallarbeiter, Berlin.
Deutsche Allgemeine Politechnische Zeitung, Berlin.
Deutsche Bauzeitung, Berlin.
Deutsche Industriezeitung, Chemnitz i/Sachsen.
Deutsches Patent-Blatt, Kaiserl. Patent-Amt, Berlin.
Die chemische Industrie, Berlin.
Dingler's Politechnisches Journal, Stuttgart.
Eisenbahn-Verordnungsblatt, Königl. Ministerium der öffentl. Arbeiten, Berlin.
Eisen-Zeitung, Berlin.
Electro-Technische Zeitschrift, Berlin.
Fortschritte der Physik, Berlin.
Gerber-Zeitung, Berlin.
Heusingers's Organ für Fortschritte des Eisenbahnwesens, Wiesbaden.
Jahrbuch der Erfindungen und Fortschritte auf physikalischem Gebiete, Leipzig.
Journal für Gasbeleuchtung und Wasserversorgung, München und Leipzig.
Literarischer Anzeiger für Berg-, Hütten-, Maschinenwesen und für verwandte technische Zweige, Berlin.
Repertorium für Experimental-Physik und für physikalische Technik, München.
Verhandlungen der Politechnischen Gesellschaft, Berlin.
Wochenblatt des Vereins deutscher Ingenieure, Berlin.
Wochenblatt für Architecten & Ingenieure, Berlin.
Zeitschrift für angewandte Electricitätslehre, München.
Zeitschrift für Bauwesen, Berlin.
Zeitschrift für Berg-, Hütten- und Salinenwesen im preuss. Staate, Berlin.
Zeitschrift für Instrumenten-Kunde, Berlin.
Zeitschrift für Mathematik und Physik, Leipzig.
Zeitung des Vereins deutscher Eisenbahn-Verwaltungen, Berlin.

Telegraphenbau-Anstalten.

E.—Contractors for Telegraph Installations.
F.—Télégraphes (Entrepreneurs de).

Baur, G., Stuttgart.
Becker, Berlin, Johanniterstr. 8.
Borghausen, B. & Co., Cöln.
Buffleb, Ad., Dresden, Pragerstr. 25.
Elsner & Co., Berlin, Seydelstr. 27.

Telegraphenbau-Anstalten.—*Fortsetzung.*

Felten & Guilleaume, Cöln.
Gurlt, Berlin, Friedrichstr. 24.
Hanneman, Herrm. Berlin, Besselstr. 17
Henning & Wentzke, Berlin, Alexanderstr. 29.
Hipp, M., Neuchâtel.
Horn, W., Berlin, Kommandantenstr. 45.
Kaiser & Schmidt, Berlin, Johannisstr. 20.
Kaiser & Schmidt, Berlin, N., Johannisstr. 20.
Kräntzer, A., Berlin, SW., Nostizstr. 30.
Lewert, C. F., Berlin, C., Brüderstr. 14.
Mix & Genest, Berlin, Prinzessinnenstr. 23.
Pöge, Herrm., Chemnitz.
Reutzsch, Louis, Meissen i/Sachsen.
Schiebeck & Plentz, Berlin, Neuenburgerstr. 19.
Siemens & Halscke, Berlin, Markgrafenstr.
Schomburg, Herrmann, Berlin, NW., Alt-Moabit 20.
Wagner, C. Theod., Wiesbaden.
Wehr, G., Berlin, SW., Ritterstr. 49.
Wiesenthal, Aachen.

Telegraphen Glocken.

E.—Telegraphic Bells.
F.—Sonneries télégraphiques.

Borchert & Sohn, Berlin, Alte Jacobstr. 110.
Jauck, G. A., Leipzig. Schlagglocken für electrische Glocken.
Ziegenspeck, Berlin, Kommandantenstr. 56.

Telegraphen und Isolirte Dräthe.

E.—Manufacturers of Cables, Telegraph & Insolated Thread & Wires.
F.—Câbles et fils isolé (Fab. de).

Adrian, Berlin, Alexandrinenstr. 25
Naglo, Gebr., Berlin, Waldemarstr. 44 O.
Obermeyer, J., Nürnberg.
Pauly, G., & Co., Mengen i/Wbg.
Römisch, Berlin, Naunynstr. 41.
Rubach, Berlin, Lichtenbergerstr. 13.
Sasserath, F. A., Berlin, SO., Schmidtstr. 37.
SPEISER, CARL, NÜRNBERG.
Vogel, C. J., Berlin, SO., Ritterstr. 39.

Telephon-Anlagen.

E.—Telephone Contractors.
F.—Téléphones (Entrepreneurs de).

Baur, Gust., Stuttgart.
Iserhardt, Gustav, Rheydt i/W.
Kummer, O. L., & Co., Dresden, Waisenhausstr. 27.
Mack, Joh. W., Frankfurt a/M.
Maier, Albert, München.
Nicter, H., Altona.

Digitized by Google

Telephonfabriken.

E.—Telephone Manufacturers.
F.—Téléphones (Fab. de).

Albert, J. W., Frankfurt a/M.
Berliner, J., Hannover.
De Locht-Labye, L., Lüttich.
Einstein, J., & Co., München.
Fabrik für electr. Apparate, Uster-Zürich.
Fein, C. E., Stuttgart.
Grosse, J. G., Dresden, Neustadt.
Heller, F., Nürnberg.
Heller, R., Nürnberg.
Lamberg, A. W., Linz.
Maier, A., München.
Mix & Genest, Berlin, Prinzessinnenstr. 23.
Schäfer & Montanus, Frankfurt a/M.
Schwerdt, Carlsruhe.
Schoenemann, München.
Stein, Dr. Th. Sigm., Frankfurt a/M.
Tenner, A., Berlin.
Wehr, G., Berlin.
Zelweiger & Ehrenburg, München.

Therapeutische Apparate.

E.—Therapeutic Apparatus.
F.—Appareils thérapeutiques.

STAUDT, EMIL, FRANKFURT A/M.

Thran und Talg.

E.—Dealers in Tallow and Train Oil.
F.—Suif et huile de graissage.

Berend, Dr. M., Schönfeld bei Leipzig.
Diebner, Berlin, Grüner Weg 108.
Rengert & Co., Berlin, Linienstr. 81.

Turbinen u. Wasserräder.

E.—Turbines and Water Wheels.
F.—Roues hydrauliques.

Barger Maschinenbau-Actien-Gesellschaft, Barg.
Bêché & Gross, Hückeswagen.
Becker, Georg, Lichtenwörth.
Berger-Andrée & Co., Alt-Thann.
Beuchelt & Co., Grünberg.
Briegleb, Hansen & Co., Gotha.
Brochier, L., Augsburg.
Carle, L. R., Wien.
Cölner Maschinenfabrik, Carl Beissel & Co., Ehrenfeld.
Coester, G., Wetterburg.
Earnshaw, J. Edw., & Co., Nürnberg.
Ehrenberg, C., Berlin, N., Krausnickstr. 24.
Eichmann, Leonce, Zug.
Eisengiesserei & Maschinenfabrik, vorm. M. Glas, Freisnig.
Ernst, Gebr., Müllheim.
Escher, Wyss & Co., Zürich.
Fischer, C., Augsburg.
Fischer, Gebr., Wiener-Neustadt.

Turbinen und Wasserräder.—*Fortsetzung.*

Froh, Franz, Diez a. d. Lahn.
Fürstl. Liechtenstein'sche Maschinenfabriks-Direction, Adamsthal.
Gamann, H., Neunkirchen.
Giroud, L., Olten.
Goetto, Carl, Berlin, S., Prinzenstr. 98.
Haag, Friedr., Nürnberg.
Haas, Franz, Ravensburg.
Hansa, Werft für Schiffe und Maschinenbau-Anstalt, Rostock.
Hemmers, C., Wittwe, Neidenfels.
Henning, Fr., Mezingen.
Heinze & Co., Guben.
Hildt & Mezger, Berg-Stuttgart.
Hoffmann, O., Passau.
Holder-Egger, Gebr., Memel.
Holt, Thomas, Triest.
Huber, Jos., Steyr.
Hüttenberger Eisenwerks-Gesellschaft, Klagenfurt.
K. K. L. Filial-Maschinenfabrik von Escher, Wyss & Co., Leesdorf.
Kattentidt & Kleucker, Hildesheim.
Kiefer, G., Stuttgart.
Kieffer, G. P., Ehrenfeld-Cöln.
Kipfer, Friedr., Kalchofen.
Klinkmann, Gebr., Demmin.
Koch, Gebr., Zürich.
Königl. Württemberg. Hüttenverwaltung Wilhelmshütte, Schussenried.
Königsberger Maschinenfabrik, Richard Laudien, Königsberg i. Pr.
Kuërs, Fr. O., Sternberg.
Kunz, J., & Co., Neustadt-Magdeburg.
Kyll, P., Bayenthal-Cöln.
Lausitzer Maschinenfabrik, vorm. J. F. Petzold, Bautzen.
Lehmann & Bauer, Guben.
Leobersdorfer Maschinenfabrik & Eiseng., J. Neumann, Leobersdorf.
Loser, A., Bendorf.
Lüneburger Eisenwerk, Lüneburg.
Luther, G., Braunschweig.
Maschinenfabrik, Augsburg.
Maschinenbau-Anstalt Golzern bei Grimma.
Maschinenwerkstätte & Eisengiesserei, Friedrichsdorf.
Maschinenwerkstätte & Eisengiesserei St. Georgen.
Meissner Eisengiesserei & Maschinen-Anstalt, Meissen.
Meyr, Gebr., Schaffhausen.
Möller & Blum, Berlin.
Müller, Jos., Bamberg.
Müller, J. F., Fulda.
Müller, M., Cannstatt.
Münzner, F. A., Obergruna.
Neuberg-Mariazeller Gewerkschaft, Wien.
Oeser, Adolf, Penig.
Pfeiderer, J. F., Aalen.
Pieper, Adolf, Mörs a. Rh.
Platz, Wm., Söhne, Weinheim.
Queva, H., & Co., Erfurt.

Digitized by Google

Turbinen und Wasserräder.—*Fortsetzung.*

Richter, Frdr. Wilh., Harthau.
Riedinger, L. A., Augsburg.
Rieter, Joh. Jac., & Co., Töss.
Rietmann, U., Nettstall, Schweiz.
Ruesch, J. Ignaz, Dornbirn.
Schindler & Grünewald, Meissen.
Schmeisser & Schulz, Neustadt a. d. Dosse.
Schmidt, B., Zell.
Schmilinsky's Söhne, Hamburg.
Schneider, P., & Co., Aachen.
Schröeder, A. Th., Cöln.
Schumacher, Joh., Wwe., Cöln.
Seydelmann, L., Aalen.
Specker, Carl Aug., Wien.
Stieberitz & Müller, Apolda.
Strobel, F. W., Chemnitz.
Union-Giesserei, Königsberg i. Pr.
Villacher Maschinenfabrik Egger, Moritsch & Co., Villach.
Voith, J. M., Heidenheim a. d. Brenz.

Waagen.

E.—Balance Makers.
F.—Balances.

Albrecht, Friedr., Magdeburg.
Arndt, J., Lübeck.
Bernhard & Enders, Mainz.
Bernstein, Alex., & Co., Berlin.
Beylen, Jacob, Cöln a. Rh.
Bockhacker, H., Berlin.
Böttger, C. A., Erfurt.
Busse, Rudolf, Schweidnitz.
Dageför, G. W., Buxtehude.
Dieterich, Gebr., Biberach.
Frank, L. Otto, Berlin.
Freund, Gebr., Ratibor.
Fuchs, J. J., Bernburg.
Grubert's, L., Wittwe, Stettin.
Haug, Const., Göppingen.
Hermann, A. C., Berlin.
Hermann, H., Breslau.
Hoffmann, C., Leipzig.
Horn, Ph., Frankenthal.
Horn, S., Offenbach a/M.
Huber, Johann, Kulm.
Kargus, F., Döbeln.
Kern, S., Schwiebus.
Kranz, Ed., Stargard.
Krüger, P. F., Gössnitz.
Kuhn, Gebr., & Hoffmann, Zabern.
Landberg & Wolpers, Hannover.
Laubenheimer, Chr., Meisenheim.
Lavaud & Helbig., Leipzig-Lindenau.
Lehmann, C., Freiburg.
Leyser & Co., Zabern.
Lüders, H., Braunschweig.
Lüders, H., Liegnitz.
Mannheimer Maschinenfabrik Schenck, Mohr & Elsösser, Mannheim.
Meckel, H. J. C., Herborn.
Metzner Gebr., Annaberg.
Meyer, Roth & Pastor, Cöln a. Rh.

Waagen.—*Fortsetzung.*

Müller, J. G., Gornsdorf.
Nieber & Co., Gg., Hamburg.
Nöll'sche Fabrik, Würzburg.
Nowitzky, Math., Brünn.
Ohren, A. & W., Velbert.
Ottmann, Gg., Augsburg i/B.
Otto, Albert, Leipzig-Reudnitz.
Pechanek, Fr., Königgrätz.
Pfitzer, Gebr., Oschatz.
Preussger, Adolf., Schönlinde.
Quester. W., Cöln.
Redecker & Nauss, Bielefeld.
Reinisch, Wenzel, Wien.
Richter, Frz., Döbeln.
Ried, Gebr., München.
Risaer Waagen- & Maschinenfabrik, Risa a. d. Elbe.
Sartorius, F., Göttingen.
Schmidt & Co., Hamburg, Rosenfeld 24.
Schneidewind, H., Sondershausen.
Schreiner, Joh., Graz.
Schroer, Hermann, Döbeln.
Seiberlich & Co., Risa a. d. Elbe.
Seydelmann, L., Aalen.
Springer, W., Varel a. d. Jahde.
Steppan'sche Maschinenbau-Anstalt, Podersam.
Thormeyer & Co., Neustadt-Magdeburg.
Vögeding & Hausmann, Bielefeld.
Vogt, Ludwig, Leipzig.
Wagner, L., Heilbronn.
Wagner & Söhne, Nossen.
Walber, A., Mainz.
Wermser, Herm., Stassfurt.

Walzen und Walzwerke.

E.—Rolled Plate Works—Rolling Mills & Machines.
F.—Laminoirs.

Achenbach sel. Söhne, Engelhard, Buschhütten.
Banning, J., Hamm.
Berg- & Hüttenverwaltung, Achthal.
BOOTH & CO., Sheepcote-street, Birmingham. Telephon Nr. 311.
Breitenbach, Gerlach, Sieghütte.
Dingler, Karcher & Co., St. Johann a. d. Saar.
Duisburger Maschinenbau-Actien-Ges., vorm. Bechem & Keetmann, Duisburg.
Ehling, J., Berlin.
Fölzer, H., Söhne, Siegen-Sieghütte.
Fürstbischofl. Hüttenverwaltung, Buchbergsthal.
Ganz & Co., Budapest.
Gontermann, G., Sieghütte b. Siegen.
Gruson, H., Buckau.
Gutehoffnungshütte, Oberhausen a. Ruhr.
Hermanshütte, bei Hörde.
Hoffmann, H., Prenzlau.
Hummel, C., Berlin.
Klein, Gebr., Dahlbruch.
Koettgen, F. W., Barmen.
Krug, H. Otto, Nippes.
Leder, Rudolf, Quedlinburg a. H.
Leobersdorfer Maschinenfabr. & Eisengiesserei, J. Neumann, Leobersdorf.

Digitized by Google

Walzen und Walzwerke.—*Fortsetzung.*

Meissner Eisengiesserei u. Maschinenbau-Anstalt, Meissen.
Moersch, A., Berlin.
Naucke, W., Neu-Ruppin.
Neher's Söhne, Neuhausen, Schweiz.
Neuberg-Mariazeller Gewerksch., Wien.
Nolden, M. J., Cöln.
Peters, Wilh., Kückelhausen.
Pütz, P. J., Cöln a. Rh.
Qurin, Gebr., Kirchberg a. Wechsel.
Rheinische Bergbau- & Hüttenwesen-Act.-Ges., Niederrheinische Hütte.
Roesch, Friedr., Pforzheim.
Schlageter F. J., Vilshoven.
Schulze-Nellinghausen H., Stockum.
Stein & Co., Aachen.
Wolff, Jul., & Co., Heilbronn.
Zobel, Neubert & Co., Schmalkalden.

Werkzeug-Fabriken.

E.—Tool Makers.
F.—Utiles (Fab. d').

Baltzer, Ph., Berlin, SW., Wilhelmstr. 130.
Sedlmayr, Robert, München, Färbergraben 7.
Walz, H., Berlin, S., Wallstr. 55.

Wissenschaftliche Apparate.

E.—Scientific Apparatus' Makers and Dealers.
F.—Appareils scientifiques (Fab. et Mar. d').

Bach & Riedel, Berlin, Alexandrinenstr. 57.
Beetz, Dr. C., Professor, München.
Berg, Berlin, Manteuffelstr. 3.
Boss, W., matthem., physik. & pharmac. Appar., Onsmettingen.
Brugger, Otto, mathem. Appar., München.
Bube, C., mathem. Appar., Hannover.
Buldig, A., meteorol. & physik. Instr., Stolp i. P.
Burri, W., electr. Batterien, München.
Druschke, Dr., Berlin, Franzstr. 3.
Edelmann, Dr. M. Theodor, München.
Edlmann, M., physik.-mech. Appar., München.
Ertel, T., & Sohn, astron., geodät. & mathem. Instrum., München.
Fabrik electr. Apparate, Uster-Zürich.
Friese & Rohrschneider, chirurg.-techn. Appar., Magdeburg.
Gauernack & Reinboth, electr.-mediz. Apparate, Dresden.
Goldschmidt, Berlin, Wilhelmstr. 84.
Greiner, E. G., Berlin, Friedrichstr. 45.
Greiner, Franz, Berlin, Sebastianstr. 76.
Hartmann, E., Würzberg.

Wissenschaftliche Apparate.—*Fortsetzung.*

Heidrich, Ad., Breslau.
Heller, T., physik. & chem. Appar., Nürnberg.
Hirschmann, Berlin, Besselstr. 2.
Kaiser & Schmidt, Berlin, Johannisstr. 20.
Kern, Gottl., & Sohn, math. Instr., Onsmettingen.
Kessler, Gebr., mathem. Instr., Speyer.
Kröning, F., Söhne, mathem. Appar., Magdeburg.
Kühne, P., mech.-opt. Instrum., Magdeburg.
Lambrecht, W., meteorol, Appar., Göttingen.
Leppin & Masche, Alte Jacobstr. 83.
Loewy, Berlin, Dorotheenstr. 92.
Ludolph, W., Bremerhaven.
Luhme, J. F., & Co., Berlin, Königgrätzerstr.
Lypowsky, Ed., mediz. Appar., Heidelberg.
Miller, Ferd. von, sen., München.
MILLER, J., INNSBRUCK.
Muencke, Dr., Berlin, Louisenstr. 58.
Neher, J., München.
Rehfuss, F., Bitz b. Ebingen, Württ.
Reinfelder & Hertel, mathem. Instrum., München.
Rohrbeck, Dr. Hermann, Berlin, Königgrätzerstr. 112.
Sauter, E., physik. & math. Instr., Onsmettingen.
Schlag & Behrend, Berlin, Alexanderstr. 70.
Schlösser, J. C., electr. Appar., Königsberg.
Steinheil, Dr. A., München.
Stelling, Carl, Appar. f. Apoth., Chem., Phys. & Techn., Hamburg.
Stöhrer, Dr., & Sohn, physik., electr. & mediz. Appar., Leipzig.
Talbot, Berlin, Auguststr. 68.
Warmbrunn, Quilitz & Co., Berlin, Rosenthalerstr. 40.
Walter, J. B., Hof, Bayern.
Wetzer, H., Pfronten.
Winzer & Uhlig, Berlin, Stallschreiberstr. 59.
Voss, J. R., Berlin, Auguststr.
Voss, Berlin, Pallisadenstr. 20.
Zenger, K. W., Professor, Prag.
Ziember, Josef, Furtwangen.

Zinkereien.

E.—Zinc Works.
F.—Zinc (Fab. de).

Borchert, Wilh., jr., Berlin, Kochstr. 30.
Castner & Co., Berlin, Chausseestr. 24.
Ende & Devos, Berlin, Gitschinerstr. 74.
Heckmann, C., Berlin, Schlesischestr. 18/19.
Hilgers, Jacob, Rheinbrohl.
Lehmann, Heinr., & Co., Berlin, Chausseestr. 113.
Lindgens & Söhne, Mühlheim a/R.
Mehles & Behrens, Berlin, Pankstr. 14/15.
Paetow & Fromm, Berlin, Fürstenstr. 21.
Prym & Lintz, Berlin, Fischerstr. 31.
Schwintzer & Graff, Berlin, Sebastianstr. 18.

Digitized by Google

Allgemeine Physik. — Electricitätslehre.

General Text Books on Physics and Electricity.

Ackermann, H., der telelog. elektr. Fernsprechapparat f. d. Kriegsgebrauch. Rastatt 1877. .. 1. 20.

Baeblich, H., das Buch d. Physik. Gemeinfassl. Darstellg. d. Ziele u. Ergebnisse physikal. Forschgn. Berlin 1881. geb. (M. 8.50) .. .. 4. 50.

Balfour-Stewart, kurzes Lehrb. d. Physik. Braunschw. 1872. .. .. 5. —.

Ballauff, L., die Grundlehren der Physik in elementarer Darstellung. Für das Selbststudium bearb. Langensalza 1881. .. .. 10. —.

Beer, A., Einltg. in d. Elektrostatik, d. Lehre v. Magnetismus u. d. Elektrodynamik. Hrsg. v. J. Pflücker. Braunschweig 1865. .. .. 2. —.

BEETZ, W. v., LEITFADEN DER PHYSIK. 6. Aufl. Leipzig 1880. .. .. 3. 60.

Dasselbe gb. .. .. 4. 20.

— — ANTHEIL D. K. BAYER. AKADEMIE D. WISSENSCH. AN D. ENTWICKLG. D. ELEKTRICITÄTSLEHRE. München 1873. .. .. 1. 20.

— — GRUNDZÜGE DER ELEKTRICITÄTSLEHRE. 10 Vorlesgn., geh. vor d. Mitgl. d. ärztl. Vereins in München. Leipz. 1878. .. .. 3. 60.

Benedict, M., Nervenpathologie & Electrotherapie. I. Abtheilg. Leipzig 1874. 11. 20. — Dasselbe. II. Abtheilg. 1. Hälfte. Gehirnkrankheiten 1876. .. .. 7. 20.

Bericht üb. die wissensch. Apparate auf d. Lond. internat. Ausstellung 1876. Hrsgb. v. A. W. Hofmann. Braunschw. 1881. .. .. 24. —

— — üb. d. wissenschaftlichen Instrumente a. d. Berliner Gewerbeausstellung im Jahre 1879. Hrsgb. v. L. Loewenherz. M. 292 Illustr. Lex.-8. Berlin 1880. .. .. 20. —.

Bernstein, A., die eltektrische Beleuchtung. Berlin 1880. .. .. 2. —.

BIBLIOTHEK, ELEKTRO-TECHNISCHE, herausgegeben von G. Glaser-De Cew. In 10 Bänden, mit 400 Illustrationen. 1882 u. ff. .. .. à 3.—

Inhalts-Uebersicht. I. Bd. Die magnetelektrischen und dynamoelektrischen Maschinen. — II. Bd. Die elektrische Kraftübertragung. — III. Bd. Beleuchtung und Heizung durch Electricität. — IV. Bd. Die galvanischen Batterien. — V. Bd. Die Telegraphie. — VI. Bd. Telephon, Mikrophon und Radiphon. — VII. Bd. Galvanoplastik, Elektrolyse und Reingewinnung. — VIII. Bd. Die elektrischen Mess- und Präcisionsinstrumente. — Supplement: IX. Bd. Die Grundlehren der Elektricität. — X. Bd. Elektrisches Formelbuch. Terminologie in deutscher, englischer und französischer Sprache.

Binder, F., die elektr. Telegraphen, das Telephon u. d. Mikrophon. Populäre Darstellung ihrer Geschichte, ihrer Einrichtung und ihres Betriebes; für angeh. Telegraphisten, Post- und Eisenbahnbeamte. 3. Aufl. v. Dr. D. Lardner's "populäre Lehre v. d. Telegraphen" in vollst. Neubearbeitg. hrsg. Weimar 1880. .. .. 6. —.

Blaserna, P., Theorie d. Schalles in Beziehg. z. Musik. Leipzig 1876. .. .. 4. —. geb. 5. —.

Blum, L., Grundr. d. Physik u. Mechanik f. gewerbl. Fortbildungssch. 6. Aufl. Leipz. 1880. 2. —.

Boedicker, O., Erweiterung der Gauss'schen Theorie d. Verschlingungen m. Anwdgn. in der Elektrodynamik. Stuttg. 1876. .. .. 5. 50.

Bohn, C., Ergebnisse physikal. Forschgn. Leipzig 1877—78. .. .. 23. —.

Böhner, A. N., die Harmonie d. Töne u. d. Lichts. Telephonie u. Spektralanalyse. Hannover 1879. .. .. 1. —.

Bopp, C., 8 Wandtafeln d. Physik. F. d. physikal. Anschauungsunterr. 5. Aufl. Stuttgart 1877. .. .. 8. —. Text ap. —. 30.

— — Telephon, Phonograph, Mikrophon. Wandtafeln in Farben ausgeführt, sammt Text. Stuttgart. .. .. 1. 60.

BOERNSTEIN, RICH., DER EINFLUSS DES LICHTES AUF ELEKTR. SPANNUNG IN METALLEN. Heidelb. .. .. 1. 60.

— — D. EINFLUSS D. LICHTES AUF D. ELEKTR. LEITUNGSWIDERSTAND VON METALLEN. Heidelb. .. .. 1. 60.

Bothe, E., physik. Repetitorium. 3. Aufl. Braunschw. 1877. .. .. 3. 40.

Brenner, R., Untersuch. u. Beobacht. a. d. Gebiete d. Electrotherapie. 2 Bde. Leipz. 1868—69. 15. 20

Digitized by Google

Bruns, V. v., d. galvanokaust. Apparate u. Instrumente, ihre Handhabung u. Anwendung. Tübingen 1878. .. .. 12. —.

BUCHHOLTZ, F. H., d. Kriegstelegraphie. Berlin 1877. geb. .. .. 3. 69.

— —üb. d. Thätigkeit d. Feldtelegraphen in d. jüngsten Kriegen. Berlin 1880. geb. 1. 30.

Buchner, O., die Construction und Anlegung der Blitzableiter. 2. Aufl. Weimar 1876. .. 3. 60.

Budde, E., Lehrb. d. Physik. Berlin 1879. .. .. 6. —.

Buff, H., Lehrbuch d. physikal. Mechanik. 2 Bde. Braunschw. 1874. .. .. 23. 50.

Canter, O., der techn. Telegraphendienst. Unterrichtscursus in Briefen f. Telegraphen-, Post- u. Eisenbahnbeamte. 8. 2. Aufl. Breslau 1879. .. .. 5. —.

— — Aufgaben aus dem Gebiete der Telegraphen-Technik. Breslau 1878. .. .. .. 2. —.

Capitaine, "wie macht man Erfindungen zu Geld?" Jahrbuch f. Erfinder u. Inhaber von Erfindungspatenten. gr. 8. Berlin 1877. .. .. 1. 50.

CARL, PH., d. elektr. Naturkräfte in ihren hauptsächl. Anwendungen. M. 110 Holzschnitten. 2. Aufl. München 1878. .. .. 3. —.

Cazin, d. Wärme. Deutsch bearb. v. P. Carl. 2. Aufl. München 1877. .. .. .. 3. —.

Christiani, A., Beiträge zur Elektricitätslehre. Ueber irreciproke Leitung elektrischer Ströme, nebst einem Excurse: Das Potential zweier Spiralen. Berlin 1876. .. .. 6. —.

Classen, A., quantit. Analyse auf elektrolyt. Wege. M. Holzschn. Aachen 1882. .. .. 2. 40.

Clausius, R., d. mechan. Wärmetheorie. 2 Bde. 2. Aufl. Braunschweig 1876—79. .. .. 14. 40.

Clemens, T., üb. d. Heilwirkgn. d. Elektricität u. deren erfolgreiche method. Anwendg. in verschied. Krankheiten. Frankf. 1876—80. .. .. 24. —.

Coglievina, D., Centigrad-Photometer z. directen Bestimm. d. Intensität jed. belieb. Lichtquelle. Braunschw. 1880. .. .. 2. 40.

Crookes, W., d. strahlende Materie od. der vierte Agregatzustand. Leipz. 1882. .. .. 1. 50.

Crompton, R. E., die elektr. Beleuchtung für industrielle Zwecke. Deutsch von Uppenborn. München 1881. .. .. 1. —.

Crüger, J., Schule d. Physik. 11. Aufl. Leipz. 1880. .. .. 7. —.

— — Grundzüge d. Physik, m. Rücks. a. Chemie als Ltfdn. f. d. mittl. physikal. Lehrstufe method. bearb. 19. Aufl. Leipz. 1879. .. .. 2. 10.

DUB, J., der Electromagnetismus. Berlin 1861 .. .. 10. —.

— — Ueb. d. Einfluss d. Dimensionen d. Eisenkerns auf d. Intensität d. Electromagnete. Berlin 1862. .. .. 1. —.

Dub, J., Anwendg. d. Elektromagnetismus. 2. Aufl. Berlin 1873. .. .. 21. —.

Edelmann, M. T., neuere Apparate f. naturwissenschaftl. Schule und Forschung. 1. u. 2. Lfg. Stuttg. 1879—80. .. .. 14. —.

Eger, G., technol. Wörterbuch in engl. u. deutsch. Sprache. I. Thl. Englisch-Deutsch. Braunschw. 1882. .. .. 9. —.

Eisenlohr, W., Lehrb. d. Physik. 11. Aufl., bearb. v. Zech. Stuttg. 1876. .. .. .. 9. —.

Emsmann, A. H., physik. Handwörterb. 2 Bde. 2. Aufl. Leipz. 1868. .. (M. 16. —.) 5. —.

— — Elemente d. Physik f. d. ob. Classen höh. Schulen. 3. Aufl. Leipz. 1881. .. .. 3. —.

Erb, W., Handb. d. Electrotherapie. I. Hälfte. Leipz. 1882. .. .. 6. —.

Erb, W., üb. d. Anwendung d. Elektricität in der innern Medizin. 4. Aufl. Leipz. 1872. .. —. 75.

Erdmann, B. A., d. Anwendung d. Elektricität in d. prakt. Medicin. 4. Aufl. Leipz. 1877. .. 7. 20.

Esmarch, B., d. neuen Wunderdinge d. Erfindung: Das Telephon, das Mikrophon u. d. Phonograph. Prag 1879. .. .. —. 30.

Fahle & Lampe, Physik d. tägl. Lebens. 2. Ausg. Leipz. 1880. .. : .. .. 4. —.

Fein, W. E., Beschreibung der neuen Feuertelegraphen-Anlage in Stuttgart. Stuttg. 1880. .. 3. —.

Ferrini, R., Technologie der Elektricität u. d. Magnetismus. Zum Gebrauche f. Techniker, Ingenieure, bei Vorlesgn. u. zum Selbstunterricht. Aus d. Ital. v. M. Schröter. Jena 1879. 18. —.

FICK, A., d. medizinische Physik. 2. Aufl. Braunschw. 1866. .. .. 7. 50.

— — Untersuch. üb. elektr. Nervenreizung. Ebda. 1864. .. .. 4. 50.

Fisher-Treuenfeld, R. v., Kriegstelegraphie. Gesch., Entwickl., Wirkungskreis u. Organisation. Stuttg. 1879. .. .. 8. —.

— — Feuer-Telegraphen. Stuttg. 1877. .. .. 1. 80.

Fliedner, C., Lehrb. d. Physik. 2 Bde. Braunschw. 1880. .. .. 7. —.

— — Aufgaben aus der Physik. 6. Aufl. Braunschw. 1880. .. .. 2. —.

— — Auflösungen. .. .. 3. 60.

Förderreuther, F, Beschreib. d. elektr. Läutwerke auf d. k. baier. Staatsbahnlinien. Münch. 1877. —. 80.

FRICK, J., die physikal. Technik (oder Anleitg. zur Anstellg. v. physikalischen Versuchen u. zur Herstllg. von physikal. Apparaten mit möglichst einf. Mitteln). Braunschw. 1876. .. .. 12. —.

— F., Anleit. z. physik. Versuchen f. d. Volksschl. 2. Aufl. Braunschw. 1879. .. 2. 20.

Fuhrmann, A., Aufgaben aus d. analyt. Mechanik. Ein Uebungsb. f. Studirende d. Mathem., Physik, Technik etc. 2 Thle. 2. Aufl. Leipz. 1879—82. .. .. 6. —

Digitized by Google

Gehler, J. S. T., physikal. Wörterbuch, neu bearb. v. Brandes, Gmelin u. A. 11 Bde. in 20 Thln. Leipz. 1825—45. .. .. 40. —.

Geschichte und Entwickelung des elektrischen Fernsprechwesens. Berl. 1880. .. .. .. 1. 20.

Granfeld, A. E., die mehrfache Correspondenz auf 1 Linie mittelst vom Regulator abgetrennter unabhängiger Telegraphen - Arbeits - Apparate, ausgef. im Hughes - Perfecter - Systeme. Wien 1878. .. .. 1. 60.

Goldstein, E., eine neue Form elektr. Abstossung. Berlin 1880. .. .. 4. —.

Grawinkel, C., Telegraphen-Technik. II. Thl.: die Lehre v. den Apparaten. Berlin 1876. 1. 60.

— — Dass. III. Thl.: Einrichtung u. Betrieb einer Telegraphen-Station. M. Holzschn. Berlin 1876. .. .. 1. 20.

— — Dass. IV. Thl.: die Betriebsstörgn. auf Ruhestromleitungen u. vereinigten Aemtern. Berlin 1876. .. .. —. 60.

— — die allgem. Fernsprecheinrichtungen der deutschen Reichspost- und Telegraphen-Verwaltung. Berlin 1882. .. .. 2. 60.

Gretschel, Katechismus der Physik. 3. Aufl. Leipz. 1882. geb. .. .. 2. 50.

GROVE, W. R., D. VERWANDTSCHAFT D. NATURKRÄFTE. Deutsch v. Schaper. Braunschweig 1871. geb. .. .. 2. 50.

Guericke's, O. v., experimenta nova (ut vocantur) Magdeburgica. Im Auftr. d. Commissares d. d. Reiches f. d. Electricitätsausstellg. in Paris 1881 neu edirt u. m. e. histor. Nachworte versehen v. Dr. H. Zerener. (Lat., deutsch u. franz.) Fol. Leipzig 1881. .. .. 3. 50.

Handmann, R., Bericht üb. d. Egger'schen electromagnet. Motor. Wien 1878. .. .. 1. 50.

Hankel, electr. Untersuchungen. 1.—15. Abhandlg. Leipz. 1856—1881. .. .. .. 35. 20.

Hanow, über einige elektromagnetische u. magnetoelektrische Erfindungen. Delitzsch 1874. .. 1. 20.

Heilemann, F. J., der Blitzableiter. Das Neueste üb. dessen Herstellg. und Sicherheit bring. Anwendung. Mit Illustr. Görlitz 1880. .. .. —. 75.

— — der neue Eger'sche elektromagnetische Motor und die elektromagnetische Triebkraft im Allgemeinen. Münster 1879. .. .. 2. —.

Heller, A., Geschichte d. Physik. In 2 Bdn. 1. Bd. Stuttg. 1882. .. .. 9. —.

Hellmuth, J. H., Natur-Lehre. Bearb. v. E. Reichert. 18. Aufl. Braunschw. 1875—79 .. 7. —.

HELMHOLTZ, H., WISSENSCHAFTL. ABHANDLGN. 1. Bd. Mit Portr. und 3 lith. Tafeln. gr. 8. Leipz. 1882. geb. .. .. 20. —.

— — DIE LEHRE VON DEN TONEMPFINDUNGEN. Als physiol. Grundlage f. d. Theorie der Musik. 4. Aufl. Braunschw. 1877. .. .. 12. —.

— — POPULÄRE WISSENSCHAFTL. VORTRÄGE. 2. Aufl. 3 Thle. Braunschw. 1876. .. .. 8. 40.

Hering, E., zur Lehre vom Lichtsinne. Wien 1878. .. .. 3. 60.

Hess, M., dynam. Stofflehre. 1. Kosm. Theil. Allgem. Bewegungserscheinungen u. ewiger Kreislauf d. kosm. Lebens. Paris 1878. .. .. 8. —.

— C., histor. Notizen üb. die Entwickelung d. elektrischen Influenzmaschinen u. Theorie derselben. unter besond. Berücksichtigung der Holtz'schen Maschinen 4. Frauenfold 1879. 2. —.

Hessler, J. F., Lehrb. d. techn. Physik. Umgearb. v. F. J. Pisco. 2 Bde. 3. Aufl. Wien 1865—66. .. .. 8. —.

Heussi, J., der physikal. Apparat. Anschffg., Behandlg. u. Gebrauch desselben. Leipz. 1875. 10. —.

— — Lehrbuch der Physik f. Gymnasien, Realschulen u. and. höh Bildungsanstalten. 5. Aufl. Leipzig 1879. .. .. 4. 20.

Hoh, T., die Physik in der Medizin. Versuch einer element. Darstellg. d. organ. Naturlehre. Stuttgart 1875. .. .. 14. 80.

Hoffmann, E., die Entwickelung des deutschen Reichs-Telegraphenwesens. 2. Aufl. Berlin 1880. 1. 30.

— — das Telephon. M. 5 Holzschn. gr. 8. Berlin 1878. .. .. —. 60.

Horn, Fr. X. H., üb. Krankheitserzeugung durch erdmagnet., elektr. u. atmosphär. Einflüsse. Münch. 1863. .. .. —. 50.

HOTTHOF, F., DAS ELEKTRISCHE LICHT IN SEINER NEUESTEN ENTWICKELUNG MIT BES. BERÜCKSICHTIGUNG D. PARISER ELEKTRICITÄTSAUSSTELLUNG 1881. Halle 1882. .. .. .. 5. —.

Holtz, W., über d. Theorie, Anlage u. Prüfung d. Blitzableiter nach theilw. neuen Grundsätzen im Anschl. an die neuesten Erfahrungen. Greifswald 1878. .. .. 2. 50.

— — über die Zunahme der Blitzgefahr u. ihre vermuthl. Ursachen. Eine Statistik der Gewitter, Blitzeinschläge in Gebäude, d. blitzbezügl. baul. Einrichtgn. u. d. Verluste durch Blitz, auf Grund zahlreicher Mittheilgn. aus Deutschland, Oesterreich u. d. Schweiz. gr. 8. Greifswald 1880. .. .. 2. 50.

Jochmann, E., Grundr. d. Experim.-Physik. 7. Aufl. Berlin 1881. .. .. 4. 60.

Kahl, E., mathem. Aufgaben aus d. Physik. Nebst Auflös. 2. Aufl. Leipz. 1874. (M. 5.) Hlnwb. 3. —.

KARSTEN, G., ÜB. DIE ELEKTRICITÄT DES GEWITTERS U. DIE WIRKUNG DES BLITZABLEITER. Kiel 1880. .. .. 1. 80.

— — ÜBER BLITZABLEITER UND BLITZSCHLÄGE IN GEBÄUDE, WELCHE MIT BLITZABLEITERN VERSEHEN WAREN. Kiel 1877. .. .. —. 80.

Digitized by Google

Karsten, G., Normativ-Bestimmungen f. d. Anlage von Blitzableitern. "Fragebogen über Blitzschäden." Mit 14 in d. Text gedr. Abbildgn. Kiel 1880. .. .. .. —. 50.
Karstten, Harms & Weyer, Einleit. in d. Physik. Leipz. 1870. .. .. 26. —.
Kaselowsky, G., Handb. d. Galvanoplastik. 3. Aufl. Sttutg. 1882. .. .. 5. —.
KASTNER, F., Theorie d. Schwingungen u. Betrachtungen üb. d. Elektricität. Nach der 3. Aufl. ins Deutsche übersetzt. 4. Strassb. 1881. n. .. .. 1. —.
KIRCHHOFF, G., Vorlesungen üb. mathem. Physik. 2. Aufl. Leipzig 1877. .. .. 13. —.
— — gesammelte Abhandlgn. M. Portrait u. 2 lith. Taf. gr. 8. Leipz. 1882. geb. .. 9. —.
Klasen, L., die Blitzableiter in ihrer Construction und Anlage. Leipzig 1879. .. .. .. 2. —.
Klein, H., Theorie d. Elasticität, Akustik u. Optik. Zugleich als Suppl. zu dem Lehrb. d. Physik v. Dr. Paul Reis. Leipzig 1877. .. .. 10. —.
KOHLRAUSCH, F., leitf. d. prakt. Physik. M. e. Anh.: Das elektr. u. magnet. absol. Maasssystem. 4. Aufl. Leipz. .. .. 5. 60.
Koppe, K., Anfangsgründe der Physik. 14. Aufl. Essen 1878. .. .. (4.20.) Hlnwdb. 3. 20.
Kötteritzsch, Th., Lehrb. d. Elektrostatik. Leipz. 1872. .. .. 7. —.
Kral, J., Elemente d. Staats-Telegraphendienstes m. vorzugsw. Berücksicht. d. Einrichtg. d. k. k. Telegraphen-Nebenstationen. 7. Aufl. Marburg 1878. .. .. 5. —.
Krebs, G., die Erhaltung d. Energie als Grundlage d. neueren Physik. München 1878. .. 3. —.
— — Leitf. d. Experim.-Physik. Wiesbaden 1881. .. .. 4. 60.
Kühne, W. & J. Steiner, üb. elektr. Vorgänge im Schorgan. Heidelberg 1881. .. .. —. 40.
Kuhn, C., angewandte Elektricitätslehre. Leipz. 1866. .. .. 45. —.
La Cour, P., d. phonische Rad. Deutsch v. Kareis. Leipz. 1880. .. .. 2. —.
Lang, V. v., Einltg. in d. theoret. Physik. Braunschw. 1873. .. .. 10. —.
Lommel, E., das Wesen d. Lichtes. Leipz. 1875. .. .. 6. —. geb. 7. —.
— — Lexikon d. Physik u. Meteorologie in volksthüml. Darstellg. Leipz. 1882. 4. —. geb. 4. 50.
Lorberg, H., Lehrbuch der Physik f. höhere Lehranstalten. Leipz. 1877. .. .. .. 4. —.
Lorenz, L., die Lehre vom Licht. Leipz. 1877. .. .. 4. —.
Losslau, P., Anl. z. billigen Selbstanfertigg. v. elektr. Apparaten. Berlin 1880. .. .. 1. —.
Ludewig, J., elektrische Messkunde. Dresden 1878. .. .. 6. —.
— — der Reichstelegraphist. 4. Aufl. Dresden 1877. .. .. 9. —.
— — die Telegraphie in staats- und privatrechtlicher Beziehung vom Standp. d. Praxis u. d. geltenden Rechtes. Dresden 1872. .. .. 6. 75.
Mayer, J. R., die Mechanik d. Wärme, in gesamm. Schriften. 2. Aufl. Stuttg. 1874. .. 8. —.
Mecklenburg, H. B., über d. versch. Methoden z. Bestimmung der Geschwindigkeit des Schalles. Berlin 1877. .. .. 1. —.
Meissner, G., die Kraftübertragung auf weite Entferngn. u. d. Construction d. Triebwerke und Regulatoren. 1. Lfg. Jena 1882. .. .. 3. —.
Menzel, R., Wandtafel f. d. physikal. Unterr., in 24 Blättern. Mit erläut. Text. Breslau 1875 12. 20.
Merling, A., die Telegraphen-Technik der Praxis im ganzen Umfange. Hannover 1879. .. 20. —.
Meyer, H. A., zur Physik des Meeres. Berlin 1874. .. .. 6. —.
Meyer, M., die Elektricität in ihre Anwendg. auf die prakt. Medizin. 3. Aufl. Berlin 1868. .. 8. —.
Moser, J., der Kreisprocess, erzeugt durch den Reactionsstrom der electrolystischen Ueberführung u. durch Verdampfung und Condensation. gr. 4. Leipz. 1879. .. .. .. 1. 20.
MOUSSON, A., die Physik auf Grundlage der Erfahrung. 3. Aufl. In 3 Bändern. I. Allgem. u. Molecularphysik. 1879. 6. 40. II. 1. Die Lehre v. d. Wärme. 1880. 6. —. II. 2. Die Lehre v. Licht. 7. 20. III. 1. Die Lehre v. Magnetismus u. Elecetricität. 6. —. III. 2. Die Lehre v. Galvanismus. 3. Aufl. in Vorbereitung.
Müller, Joh., Lehrbuch der Physik u. Meteorologie. 8. Aufl. v. L. Pfaundler. In 2 Bdn. Braunschw. 1876—81. n. 39. —. I. Bd.: Mechanik, Akustik. 7. 60. II. Bd. 1. Abth.: Optik. 11. —. II. Bd. 2. Abth.: Wärme. 8. 40. III. Bd.: Elektrische Erscheinungen. 12. —.
— — Dass. eleg. 4 Hlbfzbdc. .. .. 49. —.
— — Grundr. d. Physik u. Meteorol. 13. Aufl. Braunschw. 1881. Neu. .. .. .. 7. —.
— — Lehrb. d. kosm. Physik. M. Atlas. 4. Aufl. Braunschweig 1875. .. .. .. 24. —.
Munk, H., die elektr. u. Bewegungserscheingn. am Blatte d. Dionaea muscipula. Leipz. 1876. 6. —.
Neumann, C., die elektrischen Kräfte. 1. Thl. Leipzig 1873. .. .. 7. 20.
Neumann, F., Vorlesgn. üb. die Theorie d. Magnetismus, namentl. üb. d. Theorie d. magnt. Induction. Leipzig 1881. .. .. 3. 60.
Neumann, C., Vertheilung d. Elektricität auf e. Kugelcalotte. Leipzig 1880. .. .. .. 2. 40.
NEWTON, mathem. Prinzipien d. Naturlehre, deutsch v. Wolfers. Berlin 1872. .. .. 12. —.
Niaudet, A., traité élémentaire de la pile électrique. 2me edit. 1880 .. .. .. 6. —.
— — die galvan. Elemente v. Volta bis heute. Deutsch bearb. u. m. Zusätzen versehen von W. Ph. Hauck. Braunschw. 1881. .. .. 7. —.
Nystrom, C. A., Rechen-Aufgaben aus d. Elektricitätslehre, besonders für Telegraphenbeamte. Berlin 1862. .. .. 1. 20.

Digitized by Google

Obach, E., Hilfstafeln f. Messungen elektr. Leitungswiderstände verm. d. Kirchhoff-Wheatstone-schen Drathcombination. Münch. 1879. .. .. 2. 40.
Oekonomides, G., einige Worte üb. d. Wesen d. Elektricität und d. Magnetismus. Tübgn. 1872. 1. 35.
PERRY, J., DIE ZUKÜNFTIGE ENTWICKLG. D. ELEKTROTECHNIK. Aus d. Engl. v. A. F. Weinhold. Leipzig. .. .. 1. 50.
Pfeil, L., mathem. u. physikal. Entdeckgn., gefunden u. zusammengest. Berlin 1880. .. 5. —.
Pierson, R. H., Compend. d. Electrotherapie. 1882. gbd. .. .. 4. 75.
Poggendorff, J. C., biogr.-literar. Handwörterb. zur Gesch. d. exacten Wissenschaften. 2 Bde. Leipzig 1858—63. .. .. (M. 40. —.) 30. —.
— — Geschichte d. Physik. M. 40 Holzschn. Leipzig 1879. Lnwb. .. .. .. 16. 80.
Poppe, A., alphabet.-chronolog. Uebersicht d. Erfindgn., Entdeckgn. u. Fortschritte auf dem Gebiete der Physik, Chemie, Mechanik u. industriellen Technik v. d. ältesten Zeiten bis auf uns. Tage. 3. Aufl. Frankfurt a/M. 1881. .. .. 1. —.
Prüfungen, die, b. d. Reichs-Post- u. Telegraphen-Verwaltung. 3 Bde. Dresden 1879 .. 13. —.
Psoheidl, W., Einltg. in die prakt. Physik. Braunschw. 1879. .. .. 1. 20.
Raths, P., Theorie d. Leydener Flasche. Jena 1876. .. .. 1. 20.
Rayleigh, M. A., die Theorie des Schalles. Autoris. dtsche. Ausg., übers. v. Dr. F. Neesen. 2 Bde. Braunschw. 1880. .. .. 15. —.
Recknagel, G., Compd. d. Experim. Physik. Stuttg. 1876. .. .. 15. —.
REISS, P., ELEMENTE D. PHYSIK. Leipzig 1879. .. .. 4. 50.
— — LEHRB. D. PHYSIK. 4. Aufl. Leipz. 1878. .. .. 7. 80.
Reis, P., neue elektr. Maschinen, insbes. die magnet.-elektr. Masch. und deren Anwendungen. Leipzig 1877. .. .. 2. 25.
— — das Telephon und sein Anrufapparat nach s. histor. Entwicklg. und s. prakt. Anwendg. Mainz 1878. .. .. 1. —.
Remak, R., Galvanotherapie d. Nerven u. Muskelkrankheiten. Berl. 1858. .. .. .. 7. 50.
Riecke, E., über d. elektrischen Elementargesetze. Göttingen 1875. .. .. 1. 60.
— — über die Bewegungen d. Elektricität in körperl. Leitern, insbes. üb. elektr. Schwinggn. in e. leit. Kugel. 4. Göttingen 1876. n. .. .. 3. —.
— — üb. d. ponderomotor. Elementargesetz d. Elektrodynamik. Gött. 1879. .. .. .. 2. 40.
Riemann, B., Schwere, Elektricität u. Magnetismus. Nach Vorlesungen bearb. v. K. Hattendorff. 2. Ausg. Hannover 1880. .. .. 6. —.
Riess, P. Th., die Lehre v. d. Reibungselektricität. 2 Bde. Berlin 1853. .. .. .. 24. —.
— — Abhandlungen zu der Lehre v. d. Reibungselektricität. 2 Bde. Berlin 1867—79. .. 13. —.
Roloff, J. F., d. Electromagnetismus insbes. als Triebkraft. Berlin 1868. .. .. .. 4. 50.
Rosenberger, F., d. Geschichte d. Physik in Grundzügen. 1. Theil: Gesch. d. Physik i. Alterthum u. Mittelalter. gr. 8. Braunschw. 1882. .. .. 8. 60.
Rosenthal, J., Elektricitätslehre f. Mediziner. Berlin 1869. .. .. 3. 50.
Rosicky, W., üb. mech.-akust. Wirkgn. d. elektr. Funkens.. Wien 1877. .. .. .. —. 60.
Rossbach, M. J., Lehrbuch d. physikal. Heilmethoden f. Aerzte u. Studirende. Berlin 1882. .. 13. —.
Rother, L. F. W., der Telegraphenbau. 4. Aufl. Berlin 1876. .. .. 7. —.
Ruchte, S., Repetitorium d. Physik. München 1868. .. .. (M. 4. —.) 2. 70.
Rühlmann, M. R., Handb. d. mechan. Wärmetheorie. Bd. I. II. Braunschw. 1873—78. .. 36. —.
Sack, Joh., die Telephonie, ihre Entstehung, Entwickelung und Verwerthung als Verkehrsmittel. Berlin 1878. .. .. 1. 50.
Scharnweber, L., die elektrische Haustelegraphie. Berlin 1880. .. .. 3. 60.
SCHELLEN, H., DIE NEUESTEN FORTSCHRITTE AUF DEM GEB. D. ELEKTR. BELEUCHTG. U. D. KRAFTÜBERTRAGUNG. Köln 1880. .. .. 3. —.
— — DIE MAGNET- UND DYNAMO-ELEKTRISCHEN MASCHINEN, IHRE CONSTRUCTION U. PRAKTISCHE ANWENDG. Z. ELEKTR. BELEUCHTUNG U. KRAFTÜBERTRAGUNG. 2., nach den gegenwärtigen auf d. Pariser elektr. Ausstellg. vertretenen Zustande dargest. u. verm. Aufl. Köln 1882. .. .. 16. —.
— — D. ELEKTROMAGNETISCHE TELEGRAPH. 6. Aufl. Lfg. 1. Braunschw. 1881. .. .. 3. —.
Schell, W., Theorie d. Bewegung u. d. Kräfte. Ein Lehrb. d. theor. Mechanik. 2 Bde. 9. Aufl. Leipz. 1879—81. .. .. 20. —.
Schenk, Philipp Reis, der Erfinder d. Telephon. Frankf. 1878. .. .. —. 75.
Schröder, C., Anleitg. z. Gebrauch physikal. Apparate. Magdeb. 1878. .. .. 1. —.
Schulze, L. Rud., das Buch der physikalischen Erscheinungen. Frei nach A. Guillemin. Mit 11 Cromolith., 9 gr. Abbildgn. ausserh. d. Textes u. üb. 400 Holzschn. Lex.-8. Leipzig 1877. geb. .. .. 19. 50.
Schulze, R., die physikalischen Kräfte im Dienste der Gewerbe, der Kunst und Wissenschaft. Mit gegen 400 Holzschn., 15 gr. Abbildgn. Holzschn.-Taf. Leipzig 1880. .. .. 17. —.
Schumacher, W., die Physik in ihrer Anwendg. auf Agricultur und Pflanzenphysiologie. 2 Bde. Berlin 1864—67. .. .. 16. —.
Schütte, W., physikal. Bilder. M. 46 Holzschn. Leipz. 1880. geb. .. .. 8. —.

Digitized by Google

Secchi, A., d. Einheit d. Naturkräfte. Deutsch v. R. Schulze. Leipzig 1876. .. .. .. 13. —.
Seelhorst, G., Katechism. d. Galvanoplastik. 2. Aufl. Leipz. 1879. .. .. 1. 50.
SIEMENS, W., GESAMMELTE ABHANDLUNGEN UND VORTRÄGE. Mit Portrait des Verfassers. Berlin 1881. .. .. 14. —.
— — EINIGE WISSENSCHAFTL.-TECHN. FRAGEN DER GEGENWART. Berlin 1879. .. .. 3. —.
Somoff, J., theoret. Mechanik. Aus d. Russ. von A. Ziwet. 2 Bde. Leipzig 1879. .. .. 13. 60.
Stein, Dr., das Licht im Dienste der wissenschaftl. Forschungen. Handb. d. Anwendg. des Lichtes u. d. Photographie i. d. Natur- u. Heilkunde, i. d. graph. Künsten u. d. Baufache, im Kriegswesen und bei d. Gerichtspflege. Mit 431 Text-Illustr., sowie 12 phototyp. u. chromolith. Tafeln. gr. 8. Leipzig 1877. .. .. 14. —.
Stein, S. T., die allgem. Elektrisation d. menschl. Körpers. Elektrotechn. Beiträge z. ärztl. Behandlg. d. Nervenschwäche, sowie verwandter allgem. Neurosen. Halle 1882. .. 2. 50.
Sternberg, H., Elektricität u. Nerventhätigkeit. Dresden 1875. .. .. —. 75.
Stewart, B., d. Erhaltg. d. Energie, d. Grundges. d. heut. Naturl. Leipz. 1875. 4. —. geb. 5. —.
— — Physik. Deutsche Ausg., besorgt von E. Warburg. 2. Aufl. Strassb. 1877. .. .. —. 80.
Strott, G. K., Physik f. d. unt. Klassen d. Schulen, f. Bauhandwerker, Maschinenbauer etc. Holzm. 1877. .. .. 1. 80.
Tait, P. G., Vorlesgn. üb. einige neuere Fortschritte d. Physik. Deutsche Ausg. v. G. Wertheim. Braunschw. 1877. .. .. 5. —.
Taschen-Wörterbuch, technologisches, f. Industrie und Handel. Deutsch-engl.-franz. 3 Thle. Wiesbaden. .. .. à 8. —.
Telegraphen-Bauordnung f. d. Reichs-Telegraphen-Gebiet. (1. Abth. Vorbereitungs-Arbeiten. 2. Abth. Ausführungs-Arbeiten.) Mit 21 lith. Fig.-Taf. gr. 8. Berlin 1877. .. .. 2. 50.
Telephon, das, der Phonograph u. das Mikrophon. 3 akust. Erfindgn. der neuesten Zeit. (Aus "Jahrbuch der Erfindungen.") Leipzig 1881.
Thomson & Tait, Handb. d. theor. Physik. Deutsch v. Helmholtz & Wertheim. 1. Bd. in 2 Thln. Braunschw. 1871—74. .. .. 19. —.
Tiemann, C., der elektrische Telegraph. Ein Buch für Jedermann. Berlin 1882. .. .. 5. —.
TYNDALL, J., D. WASSER. Leipz. 1872. .. .. 4. —. geb. 5. —.
— — DER SCHALL. Autoris. deutsche Ausgabe, hrsg. von Helmholtz & Wiedemann. M. 169 Holzstichen. Braunschw. 1874. .. .. 6. —.
— — DIE WÄRME BETRACHTET ALS EINE ART D. BEWEGUNG. Autoris. deutsche Ausg. von Helmholtz & Wiedemann. Braunschw. 1875. .. .. 9. —.
— — DAS LICHT. Autoris. deutsche Ausg., hrsg. v. G. Wiedemann. Braunschw. 1876. .. 6. —.
— — FARADAY U. S. ENTDECKUNGEN. Deutsch von Helmholtz. Braunschw. 1870. .. .. 4. —.
Uhland, W. H., die Telephonanlagen. 3 Blatt Zeichngn. m. erläut. Text. Lex.-8. Leipz. 1881. 4. —.
Ule, Cl., warum und weil. Fragen u. Antw. a. d. wichtigsten Gebieten d. gesammt. Naturlehre. Physikal. Thl. 3. Aufl. Berlin 1875. .. .. 2. 50. geb. 3. —.
Verdet, E., Vorlesgn. üb. d. Wellentheorie d. Lichtes. Deutsche Bearbeitung v. Dr. K. Exner. 1. Band. 1. Abth. Braunschw. 1881. .. .. 8. 40.
Viechelmann, C., Elemente der unterseeischen Telegraphie. N. d. Französ. des A. Delamarche. Berlin 1859. .. .. 2. 40.
Weber, W., ABHANDLUNGEN ÜBER ELEKTRODYNAMISCHE MAASSBESTIMMUNGEN. Mit 1 Taf. hoch 4. complet. .. .. 18. —.
— — ÜB. D. ENERGIE D. WECHSELWIRKUNG. Leipzig 1878. .. .. 2. —.
— — ABHANDLGN. Z. ATOMIST. THEORIE D. ELEKTRODYNAMIK. Leipz. 1876. .. .. 14. 50.
Weidenbach, L., Compendium d. elektr. Telegraphie. Wiesbaden 1881. .. .. 15. —.
Weinhold, A. F., physikalische Demonstrationen. Leipz. 1881. .. .. 22. —.
— — Vorschule d. Experimentalphysik. 2. Aufl Leipz. 1874... .. .. 10. —.
Wiedemann, G., d. Lehre v. Galvanismus u. Elektromagnetismus. 3. Aufl. u. d. T.: die Lehre v. d. Electricität. 1. Bd. Braunschw. 1882. .. .. 20. —.
Die neue Auflage soll 4 Bände umfassen.
Wiesemann, T., Ursachen d. Haupt-Naturerscheinungen, aus e. einzigen Fundamental-Princip entwickelt. Brüssel 1879. .. .. 4. —.
Wörterbuch, technologisches. Deutsch-engl.-franz. 3 Bde. 3. u. 2. Aufl. Wiesb. 1874—78. 30. —.
Wrobel, E., die Physik in elementar-mathem. Behandlung. Rostock 1879. .. .. .. 2. 40.
WUELLNER, A., LEHRBUCH D. EXPERIMENTALPHYSIK. 4. Bde. Leipzig. I. Mechanik und Akustik. 4. Aufl. 1882. 10. II. Optik. 3. Aufl. 1875. 9. —. III. Wärme. 3. Aufl. 1875. 9. —. IV. Magnetismus u. Elektricität. 3. Aufl. 1875. 14. —.
— — COMPEND. D. PHYSIK. 2 Bde. Leipzig 1879. .. .. 19. 20.
Wundt, W., Handb. d. med. Physik. Erl. 1867. .. .. 10. —.
Zech, P., die Physik in der Electrotherapie. Tübingen 1875 .. .. 3. 60.
— — Anwendung der Elektricität auf Beleuchtung. Heidelberg 1882. .. .. .. —. 60.
ZETZSCHE, K. E., KURZER ABRISS DER GESCHICHTE DER ELEKTRISCHEN TELEGRAPHIE. M. 51 Holzschn. Berlin 1874. .. .. 3. —.

Digitized by Google

Zetzsche, K. E. Entwickelung der automatischen Telegraphie. Mit 41 Holzschn. Berlin 1875. .. .. 1. 60.

— — Handbuch der elektrischen Telegraphie. 4 Bde. Berlin.

I. Bd. Zetzsche, K. E., Gesch. d. elektr. Telegr. 1877. .. .. 18. —.

II. Bd. Frölich, O., d. Lehre v. d. Elektricität u. d. Magnetism. 1878. .. .. 14. —.

III. Bd. Lfg. 1. 2. Henneberg, O., der Bau der Telegraphenlinien. .. .. .. 7. 80.

IV. Bd. Kohlfürst & Zetzsche, die elektrischen Telegraphen für besondere Zwecke. I. 1881. .. .. 25. —.

Zeuner, G., Grundzüge der mech. Wärmetheorie. 3. Aufl. Leipz. 1877. .. .. .. 13. —.

ZIEMSSEN, H. v., die Elektricität in der Medicin. 4. Aufl. I. Hälfte: Physikal.-Physiolog. Theil. Berlin 1872. .. .. 7. —.

ZOELLNER, J. C. Fr., Prinzipien e. elektrodynamischen Theorie d. Materie. 1. Bd. 1. Buch. gr. 4. Leipzig 1876. cart. n. 18. —. Inhalt: Weber, W., Abhandlungen z. atomistischen Theorie der Elektrodynamik. Mit 1 Photolith. u. 3 lith. Tafeln.

— — Erklärung der universellen Gravitation aus den statistischen Wirkungen der Elektricität u. d. allgem. Bedeutg. des Weber'schen Gesetzes. Mit dem Bildnisse Newton's in Stahlst. gr. 8. Leipz. 1882. .. .. 5. —.

— — das Skalen-Photometer, e. neues Instrument z. mech. Messung d. Lichtes, nebst Beitägen z. Gesch. u. Theorie d. mech. Photometrie. Leipzig 1879. .. .. .. 4. —.

— — photometr. Untersuchungen. Leipz. 1865. .. .. 3. —.

— — wissenschaftl. Abhandlg. I.—IV. Bd. .. .. 87. 50.

Digitized by Google



BRAUNSTEIN, 90/92 % MANGANÈSE,



gekoernt, staubfrei	en grains sans poudre,
für Elemente,	pour Piles Electriques,
(Leclanché Batterien)	(Piles Leclanché)
offerirt zu billigen Preisen,	est offert aux derniers prix par

Wilh. MINNER, Braunsteinhandlung, ARNSTADT, Thüringen.

Lutzow-Str. 84. **BERTHOLD MENDEL,** Lützow-Str. 84.

BERLIN, W.

Utilisation des forces électriques.	**Utilisation of Electric Power.**
S'occupe de toutes affaires concernant l'électricité et ses applications.	**Occupied with all details connected with Electricity and its application.**

Agentur-Geschäft für alle ins Fach schlagenden Geschäfte.
Agentur für Ausnützung elektrischer Kraft.

BANKERS BANKIERS BANQUIERS

PLATHO & WOLFF,

BERLIN, C.

BERTHOLD MENDEL

Sole Agent for **Alleiniger Agent für** **Seul Agent pour**

J. A. BERLY'S ELECTRICAL DIRECTORY:

AND

NEW YORK REVIEW for Telegraph and Telephone:

IN	IN	EN
GERMANY.	**DEUTSCHLAND.**	**ALLEMAGNE.**

Digitized by Google

LONDON:
PRINTED BY WM. DAWSON & SONS,
121, CANNON STREET,
AND 148 & 149, UPPER THAMES STREET, E.C.

Digitized by Google

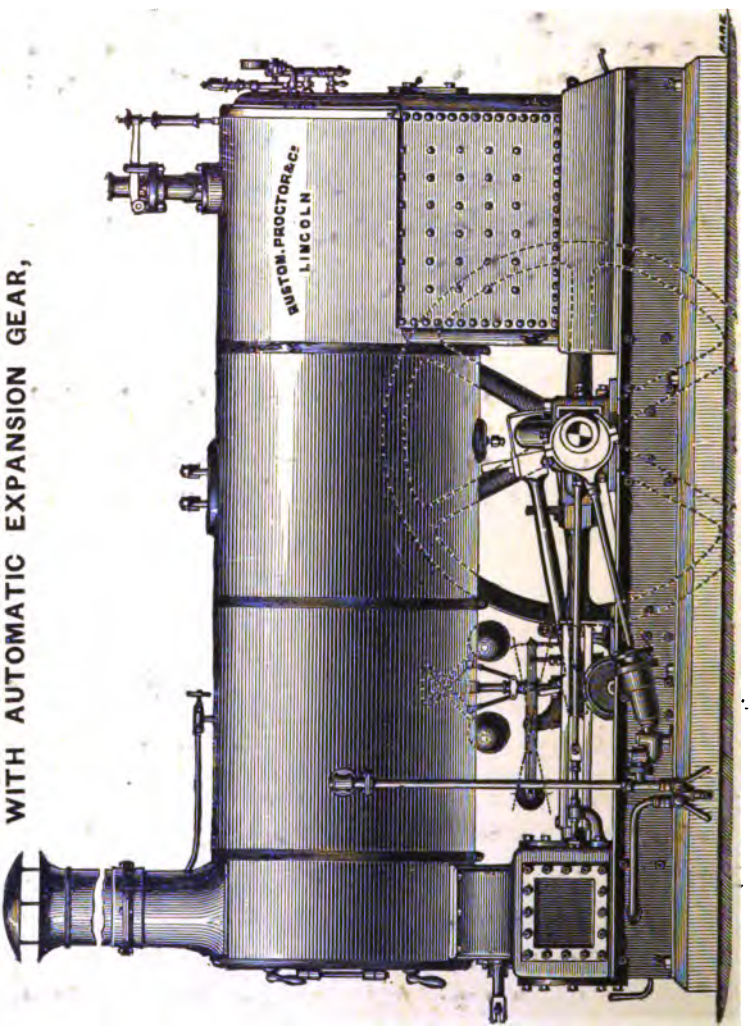
RUSTON, PROCTOR & Co.,

LINCOLN.

OUR COMPOUND

ELECTRIC LIGHT ENGINES,

WITH AUTOMATIC EXPANSION GEAR,



LOADED TO 2½ TIMES THEIR NOMINAL POWER, HAVE WORKED WITH A CONSUMPTION OF ONLY 2.63 LBS. OF COAL AND 20.46 LBS. OF WATER PER EFFECTIVE HORSE-POWER PER HOUR.

MANUFACTURE

PORTABLE, FIXED & CONDENSING ENGINES,

WITH BOILERS FOR ALL KINDS OF FUEL.

AWARDED 185 PRIZE MEDALS.

9,000 Engines Sold.

LONDON OFFICE: 20, Budge Row, Cannon Street.

Digitized by Google

WILLIAM ELMORE, 91, Blackfriars Road, London, S.E.

THE

"ELMORE"

DYNAMO-ELECTRIC MACHINE,

FOR

NICKEL-PLATING, SILVER-PLATING,
Gilding, Brassing, Bronzing, Tinning, Electrotyping,
ELECTRIC LIGHTING, etc., etc.

WILL DEPOSIT FROM 20 TO 5,000 LBS. OF METAL PER DAY.

SPECIAL MACHINES FOR REFINING METALS.

Repeated comparative trials have proved the "ELMORE" DYNAMO-ELECTRIC MACHINE to be the most powerful in the Market, and free from defects to which other Machines are liable.

THE "ELMORE"
DYNAMO-ELECTRIC MACHINE,
For ELECTRO-PLATING,

Never Reverses Current.
Has no Mercury or other Governor to get out of order.
Never Becomes Hot.
Requires No Water.
Is Perfectly Automatic.
Requires no SPECIAL Knowledge to Work it.

MACHINES FOR TIN PLATE MAKING AND GALVANIZING—A SPECIALITY.

SPECIALITY:
ALL THE LATEST IMPROVEMENTS IN MACHINERY, PLANT, and MATERIALS, for ELECTRO-PLATING and POLISHING.

Prices and full Particulars on application.

91, BLACK[illegible], LONDON, S.E.

Digitized by Google

"OTTO" GAS ENGINE.

LARGELY USED FOR ELECTRIC LIGHTING.

NO BOILER NEEDED. —:o:— OVER 8,000 WORKING.

Consumption of Gas 20 to 70 per cent. less than other Gas Engines.

ADVANTAGES.

No trouble with Coal, Ashes, Smoke, Insurance, Water, or Constant Attendance.

GOLD MEDAL,
CRYSTAL PALACE
ELECTRICAL EXHIBITION.



No Danger or Risk of Fire.

Cleanliness. Economy. Convenience. Safety. Durability.

NEW PATTERN OF 16 H.P. OTTO GAS ENGINE INDICATING 40 H.P.

THE ONLY GAS-ENGINE WHICH RECEIVED A GOLD MEDAL AT THE PARIS ELECTRICAL EXHIBITION.

LONDON OFFICE:
24, POULTRY, E.C.

CROSSLEY BROTHERS, LIMITED,
MANCHESTER.

GLASGOW OFFICE:
193, SAUCHIEHALL STREET.

Digitized by Google